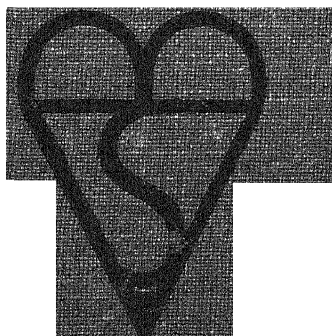


BRITISH

Standards yearbook



1946

A NEWBORN INSTITUTION

WITH TWO COLLINGS

British Standards Institution

Yearbook

1946

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Price 2/- post free

BRITISH STANDARDS INSTITUTION

Incorporated by Royal Charter

28 VICTORIA STREET, LONDON, S.W.1.

Telegrams : Standards, Sowest, London. Telephone : Abbey 3333

PREFACE

THIS YEARBOOK contains a list of British Standards in numerical order, a subject index and some information on the work of the B.S.I. up to December 31st, 1945. The Institution's Monthly Information Sheets will keep the numerical list of British Standards up-to-date, and a pocket has been provided at the back of this Yearbook for the convenience of filing the sheets.

The inclusion in the Yearbook of lists of the members of Industry Committees has been resumed.

In addition to the Yearbook and the Monthly Information Sheets, the B.S.I. issues an Annual Report and STANDARDS REVIEW, a periodical in popular form. These publications are free to subscribing members.

Particulars of membership can be obtained on application.

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CINEMATOGRAPH INDUSTRY COMMITTEE

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Mr. J. G. Hughes-Roberts		<i>Government Cinematograph Adviser</i>
Mr. H. E. Dance	}	<i>Ministry of Education</i>
Mr. R. Speight		
Mr. N. Elliott		<i>Factory Department, Ministry of Labour</i>
Capt. A. Fitzgerald		<i>Ministry of Supply</i>
Mr. G. Blattner	}	<i>British Film Producers' Association</i>
Capt. Norman Walker		
Mr. E. W. Wingrove		
Mr. E. S. Hall	}	<i>British Kinematograph Society</i>
Mr. F. A. Hoare		
Mr. R. A. Tones		
Mr. E. Oram	}	<i>British Kinematograph Society Associated Photographic Film Manufacturers</i>
Mr. I. D. Wratten		
Mr. S. Hart	}	<i>Cinematograph Exhibitors Association of Great Britain and Ireland</i>
Mr. L. Knopp		
Mr. Leslie Wakefield		<i>Incorporated Association of Kinematograph Manufacturers Limited</i>
Mr. E. E. Blake	}	<i>Associated Photographic Film Manufacturers</i>
Dr. G. B. Harrison, O.B.E.		
Mr. Oliver Bell		<i>British Film Institute</i>
Mr. F. W. Baker	}	<i>Kinematograph Renters Society</i>
Mr. J. Friedman		
Mr. F. Hill		

CEMENT, LIME AND GYPSUM INDUSTRY COMMITTEE (continued)

Dr. F. P. Stowell	<i>Central Association of Lime and Limestone Industry in Great Britain</i>
Mr. A. R. Bates	<i>Chalk Quarrying Association</i>
Mr. C. W. Matthewman	<i>Federation of Civil Engineering Contractors</i>
Mr. D. W. Griswold	} <i>Gypsum Building Products Association</i>
Dr. F. R. Himsworth	
Mr. J. F. Strable	
Mr. J. J. Holloway, I.S.O.	} <i>National Federation of Building Trades' Employers</i>
Mr. E. White	
Mr. R. V. Chate	} <i>Reinforced Concrete Association</i>
Mr. G. H. Hodgson	
Mr. R. W. Vawdrey	
Mr. J. G. Baxter	} <i>Southern Lime Association</i>
Major E. W. Taylerson	
Mr. A. H. Barnes	} <i>Royal Institute of British Architects</i>
Mr. Walter Goodesmith	
Mr. A. S. Quartermaine, C.B.E., M.C.	} <i>Railway Companies of Great Britain</i>
Mr. V. A. M. Robertson	
Mr. J. C. L. Train	
Mr. W. K. Wallace	
Mr. J. F. Woollcombe	

CHEMICAL ENGINEERING INDUSTRY COMMITTEE

Chairman : Mr. J. Arthur Reavell

Mr. P. A. Ashby	} <i>Association of British Chemical Manufacturers</i>
Major F. H. Bramwell	
Mr. J. Davidson Pratt, C.B.E.	
Mr. B. E. A. Vigers	
Mr. J. F. Crowley	<i>Association of Consulting Engineers</i>
Mr. W. R. Beswick	} <i>British Chemical Plant Manufacturers Association</i>
Mr. B. L. Broadbent	
Dr. G. E. Foxwell	
Mr. Keith Fraser	
Mr. E. H. T. Hoblyn	
Dr. R. Lessing	
Mr. Norman Neville	
Mr. G. W. Bradley	<i>Coke Oven Manufacturers Association</i>
Mr. L. E. Norton	<i>Glass Manufacturers Federation</i>
Mr. S. F. Dunkley, O.B.E.	<i>Institute of Gas Engineers</i>
Secretary	<i>Institute of Petroleum</i>

CHEMICAL ENGINEERING INDUSTRY COMMITTEE (continued)

Mr. F. A. Greene	} <i>Institution of Chemical Engineers</i>
Mr. H. Talbot	
Mr. A. C. Hartley, C.B.E.	<i>Institution of Mechanical Engineers</i>
Mr. W. H. Woodcock	<i>Institution of Structural Engineers</i>
Mr. E. F. Law	<i>Iron and Steel Institute</i>

¹ Also represents Society of Chemical Industry.

CINEMATOGRAPH INDUSTRY COMMITTEE

Chairman :

Mr. J. G. Hughes-Roberts	<i>Government Cinematograph Adviser</i>
Mr. H. E. Dance	} <i>Ministry of Education</i>
Mr. R. Speight	
Mr. N. Elliott	<i>Factory Department, Ministry of Labour</i>
Capt. A. Fitzgerald	<i>Ministry of Supply</i>
Mr. G. Blattner	} <i>British Film Producers' Association</i>
Capt. Norman Walker	
Mr. E. W. Wingrove	
Mr. E. S. Hall	} <i>British Kinematograph Society</i>
Mr. F. A. Hoare	
Mr. R. A. Tones	
Mr. E. Oram	} <i>British Kinematograph Society Associated</i>
Mr. I. D. Wratten	
	<i>Photographic Film Manufacturers</i>
Mr. S. Hart	} <i>Cinematograph Exhibitors Association of Great</i>
Mr. L. Knopp	
	<i>Britain and Ireland</i>
Mr. Leslie Wakefield	<i>Incorporated Association of Kinematograph</i> <i>Manufacturers Limited</i>
Mr. E. E. Blake	} <i>Associated Photographic Film Manufacturers</i>
Dr. G. B. Harrison, O.B.E.	
Mr. Oliver Bell	<i>British Film Institute</i>
Mr. F. W. Baker	} <i>Kinematograph Renters Society</i>
Mr. J. Friedman	
Mr. F. Hill	

CLAY PRODUCTS INDUSTRY COMMITTEE

Chairman : Mr. A. T. Green

Director of Building Research	<i>Department of Scientific and Industrial Research</i>
Mr. S. Pointon Taylor	<i>Ministry of Health</i>
—	<i>Ministry of Works (Standards Section)</i>
Mr. F. M. Dean	<i>Ministry of Works</i>
Mr. H. W. Johnson	<i>Incorporated Association of Architects and Surveyors</i>
Mr. R. L. M'Ilmoyle	<i>Institution of Civil Engineers</i>
Mr. P. E. Harvey	} <i>Institution of Municipal and County Engineers</i>
Mr. H. C. Rowley	
Mr. Leslie Turner	<i>Institution of Structural Engineers</i>
Mr. W. A. Lisney	<i>National Clayware Federation</i>
Mr. J. J. Holloway, I.S.O.	} <i>National Federation of Building Trades Employers</i>
Mr. F. W. Stratton	
Mr. J. M. Barlow	} <i>National Federation of Clay Industries (Brick and Domestic Products)</i>
Mr. S. H. Brooks	
Mr. J. H. B. Dixon	
Mr. A. G. Phillips	
Mr. E. Gwynne Vevers	
Mr. L. A. Beck	} <i>National Federation of Clay Industries (Roofing Tiles)</i>
Mr. John Bentley	
Mr. A. J. C. Watts	
Mr. G. H. Berry	} <i>National Federation of Clay Industries (Salt Glazed Pipes)</i>
Mr. H. J. C. Johnston	
Mr. F. Bloomer	<i>National Federation of Clay Industries (Sanitary Fireclay Ware Manufacturers)</i>
Mr. A. T. Green	<i>National Federation of Clay Industries</i>
Col. C. W. D. Rowe	<i>Pressed Brick Makers Association</i>
Mr. R. Wakelin	<i>Royal Institute of British Architects</i>
Mr. J. P. Davis	<i>Royal Institution of Chartered Surveyors</i>

COLLIERY REQUISITES INDUSTRY COMMITTEE*

Chairman : Mr. Robert Foot

Mr. H. C. W. Roberts	<i>Ministry of Fuel and Power</i>
Mr. C. F. Dyer	<i>Association of Consulting Engineers</i>
Mr. E. G. Batt	} <i>British Electrical and Allied Manufacturers Association</i>
Mr. H. Watson Jones	
Mr. C. A. Martin	
Mr. Peter Brown	} <i>British Iron and Steel Federation</i>
Mr. P. Jump	
Sir Richard Redmayne, K.C.B.	<i>Imperial Mineral Resources Bureau</i>
Mr. H. Coope	<i>Institution of Electrical Engineers</i>
Mr. W. J. Drummond	<i>Institution of Mechanical Engineers</i>
Mr. S. Walton-Brown	<i>Institution of Mining Engineers</i>
Mr. J. Brass	} <i>Mining Association</i>
Major D. H. Curren Briggs	
Mr. A. E. Charesworth	
Mr. W. A. Lee	
Mr. F. Llewellyn Jacob	
Mr. J. E. Strachan	
Mr. R. W. Anderson	<i>National Association of Colliery Managers</i>
Mr. Mark Brand	
Mr. Mark Ford	
Sir Evan Williams, Bart.	

* At the time of going to press this Committee is in process of re-organisation.

COTTON INDUSTRY COMMITTEE .

Chairman : Sir Raymond Streat, C.B.E.

Miss E. M. Feibusch	<i>Board of Trade</i>
Mr. J. R. Whintfield	} <i>Ministry of Supply</i>
Mr. W. Crowther	
Mr. F. Chadwick	<i>The Textile Institute</i>
Mr. F. Scholesfield	<i>The Society of Dyers and Colourists</i>
Mr. G. W. Armitage	} <i>The Cotton Board</i>
Mr. R. B. Barclay	
Mr. A. W. Bayes	
Mr. H. S. Butterworth	
Sir William Clare Lees, Bt., O.B.E.	
Mr. V. Davenport	
Mr. G. A. Donaldson	
Mr. R. Dunkerley	
Mr. F. J. V. Fernie	
Mr. T. Gray Hill	
Mr. Sydney Howarth	
Mr. W. Kershaw	
Mr. R. Odgen	
Mr. A. C. Openshaw	
Mr. Donal Walton	
Mr. C. M. Whittaker	
Mr. J. Broatch (<i>ex officio</i>)	

DAIRYING INDUSTRY COMMITTEE

Chairman : Prof. H. D. Kay, C.B.E., F.R.S.

Mr. W. L. Whitehall	<i>Commonwealth of Australia</i>
Mr. W. Craib Mr. V. Stott	} <i>Department of Agriculture for Scotland</i>
Lt.-Col. J. G. Robertson	<i>High Commissioner for Canada</i>
Mr. F. H. Taylor	<i>High Commissioner for New Zealand</i>
Mr. J. Holmes, B.Sc.	<i>Ministry of Agriculture</i>
Mr. J. M. Wright	<i>Ministry of Food</i>
Dr. W. A. Lethem, M.C.	<i>Ministry of Health</i>
Mr. A. P. Van der Post	<i>Trade Commissioner for South Africa</i>
Mr. R. Barrington Brock Mr. R. H. Powell Mr. I. C. P. Smith	} <i>British Laboratory Ware Association Limited</i>
Mr. S. Clifford Mr. G. Walworth	} <i>Central Milk Distributive Committee</i>
Mr. F. J. Clarke Mr. J. S. Clayton Marshall The Secretary	} <i>Dairy Engineers Association</i>
Mr. A. F. H. Briscoe	<i>Dairy and Ice Cream Equipment Association</i>
Dr. N. C. Wright	<i>Hannah Dairy Research Institute</i>
Mr. W. Newton	<i>Milk Marketing Board</i>
Mr. W. P. Crocker	<i>National Association of Creamery Proprietors and Wholesale Dairymen</i>
Mr. H. G. Lambert	<i>National Institute of Agricultural Engineers</i>
Dr. A. T. R. Mattick	<i>National Institute for Research in Dairying</i>
Dr. T. J. Drakeley	{ <i>The Northern Polytechnic</i> <i>British Dairy Farmers' Association</i>
Mr. A. M. Farquharson Mr. J. K. Murdoch	} <i>Scottish Milk Marketing Board</i>
Mr. G. P. Ross	<i>Scottish Milk Trade Federation</i>
Mr. H. C. Hillman Mr. J. Matthews Mr. F. Procter	} <i>Society of Dairy Technology</i>
Mr. E. B. Anderson	<i>United Dairies Limited</i>

DISINFECTANTS INDUSTRY COMMITTEE

Chairman : Mr. V. G. Gibbs

Mr. R. Murdin Drake, O.B.E. *Association of British Chemical Manufacturers*

Mr. R. G. Berchem Mr. A. E. Berry Mr. T. C. Betteridge Mr. A. J. Black Mr. R. A. Blair Mr. P. J. Bovill Mr. A. Dodd Mr. Knowles Edge Mr. H. W. Mackrill Mr. H. A. Smith Dr. S. H. N. Stothert Mr. J. E. Wells Mr. W. A. Williams	}	<i>British Disinfectant Manufacturers' Association</i>
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ELECTRICAL INDUSTRY COMMITTEE

Chairman : Sir Clifford Paterson, F.R.S.

Mr. H. D. MacLaren	<i>Admiralty</i>
Mr. T. G. Symonds Babb	<i>Air Ministry</i>
Mr. Harold Hobson	<i>Central Electricity Board</i>
Mr. C. G. Morley New	<i>Electricity Commissioners</i>
Lt.-Col. Sir A. Stanley Angwin, K.B., D.S.O., M.C.	<i>General Post Office</i>
Mr. H. W. Swann	<i>Ministry of Labour (Factory Department)</i>
Mrs. F. E. Lea	<i>Ministry of Fuel and Power</i>
Mr. A. G. Ramsay, O.B.E.	<i>Ministry of Works</i>
The Director Mr. R. S. J. Spilsbury	} <i>National Physical Laboratory</i>
Brig. F. H. MacLennan, O.B.E.	
Mr. R. W. Mountain	<i>Association of Consulting Engineers</i>
Mr. L. R. Perkins	<i>Association of Supervising Electrical Engineers</i>
Mr. F. H. Clough, C.B.E. Mr. T. W. Heather Mr. G. A. Juhlin Mr. A. E. Mills Mr. C. Rodgers, O.B.E. Mr. A. D. Sloan Mr. T. M. Stubbs Mr. J. B. Tucker	} <i>British Electrical and Allied Manufacturers Association</i>

ELECTRICAL INDUSTRY COMMITTEE (continued)

Sir Thomas F. Purves, O.B.E.	<i>Cable Makers' Association</i>
Dr. S. Whitehead	<i>Electrical Research Association</i>
Mr. E. A. Reynolds	<i>Electrical Contractors Association (Incorporated)</i>
Mr. W. J. Jones, O.B.E.	<i>Electric Lamp Manufacturers Association</i>
Mr. A. J. Burbidge	<i>Electric Light Fittings Association</i>
Mr. V. Dale	<i>Electrical Development Association</i>
Lt.-Col. S. E. Monkhouse	<i>Incorporated Association of Electric Power Companies</i>
Mr. A. G. Connell Mr. A. P. MacAlister Mr. E. A. Mills Mr. R. W. L. Phillips	} <i>Incorporated Municipal Electrical Association</i>
Mr. J. R. Beard Mr. W. K. Brasher Dr. P. Dunsheath Sir Frank Gill, K.C.M.G., O.B.E.	
Mr. P. V. Hunter, C.B.E. Mr. G. O. Watson Mr. H. T. Young	
Mr. A. P. Hutchinson	<i>London Electricity Supply Association</i>
Mr. H. Bentham	<i>Provincial Electric Supply Association</i>
Mr. C. S. Agate Mr. W. T. Gibson Mr. T. E. Goldup Major L. H. Peter, M.C., A.F.C.	} <i>Radio Industry Council</i>
Mr. C. M. Cock	<i>Railway Companies of Great Britain</i>
Mr. E. H. Edwards	<i>Public Transport Association Incorporated</i>
Prof. E. W. Marchant Dr. E. H. Rayner	} <i>Co-opted Members</i>

FINE CHEMICALS INDUSTRY COMMITTEE

Chairman : Mr. R. Murdin Drake, O.B.E.

Mr. E. F. Figg	<i>Ministry of Supply</i>
Mr. N. L. Allport Mr. E. D. Catton Mr. J. C. Cranston Mr. G. Dodd Mr. J. M. C. Fox Mr. R. S. Haskew Mr. F. H. Mackenzie Mr. C. Marsden Mr. C. W. Tod	} <i>Association of British Chemical Manufacturers</i>

GAS INDUSTRY COMMITTEE

Chairman : Col. H. C. Smith, C.B.F.

Dr. W. A. MacFarlane	<i>Ministry of Fuel and Power</i>
Mr. A. Valon	<i>Association of Consulting Engineers (Incorporated)</i>
Dr. W. T. K. Braunholtz	} <i>Institution of Gas Engineers</i>
Mr. W. Dieterichs	
Mr. C. S. Shapley	
Mr. Maurice L. Smith	
Mr. John Terrace	
Mr. G. W. Allott	} <i>Society of British Gas Industries</i>
Mr. H. E. Bennett	
Mr. S. F. Dunkley, O.B.E.	
Mr. J. Fallon	
Mr. L. Friedman	
Col. O. B. F. Plank, D.S.O.	
Mr. H. F. Potter	
Mr. T. F. C. Potterton	
Mr. E. West	
Mr. R. J. Rogers	<i>Parkinson Stove Company</i>
Mr. G. G. Pearson	<i>South Metropolitan Gas Company</i>

GLASS INDUSTRY COMMITTEE

Chairman : Mr. Edward Meigh, M.B.E.

Mr. S. K. Tweedy	<i>Ministry of Supply</i>
Dr. W. M. Hampton	} <i>Glass Manufacturers Federation</i>
Mr. G. Marchand	
Mr. W. A. Moorshead	
Mr. L. E. Norton	
Sir Graham Cunningham,	} <i>Society of Glass Technology</i>
Dr. S. English	
Mr. F. H. Hodkin	
Mr. A. E. Hill	} <i>Glass Delegation</i>
Mr. H. Moore	
Prof. W. E. S. Turner,	
O.B.E., F.R.S.	
Dr. B. P. Dudding	<i>General Electric Co., Ltd.</i>

HEAVY CHEMICALS INDUSTRY COMMITTEE

Chairman :

Mr. E. W. S. Press	<i>Ministry of Supply</i>
Mr. I. B. Anderson	} <i>Association of British Chemical Manufacturers</i>
Mr. G. H. Beeby	
Mr. E. D. Catton	
Mr. R. B. Craig	
Mr. R. Murdin Drake, O.B.E.	
Mr. A. C. Finch	
Mr. Freeman Horn	
Mr. N. A. Johns	
Mr. J. Kennedy	
Mr. F. H. Mackenzie	
Mr. P. Parrish	
Mr. S. Robson	
Mr. C. W. Tod	
Mr. H. A. Bridges	} <i>Fertiliser Manufacturers Association</i>
Mr. W. B. Davies	
Mr. N. Garrod Thomas	<i>National Sulphuric Acid Association</i>

ILLUMINATION INDUSTRY COMMITTEE

Chairman : Dr. J. W. T. Walsh

Mr. W. C. M. Couch	<i>Admiralty</i>
Mr. A. S. Miers	<i>Air Ministry</i>
Mr. T. Smith	<i>Department of Scientific and Industrial Research and National Physical Laboratory</i>
Mr. C. Roberts	} <i>General Post Office</i>
Mr. W. T. Gemmell	
Mr. E. W. Murray	<i>Home Office</i>
Mr. A. Scott, M.B.E.	<i>Ministry of Health</i>
Col. C. H. Silvester Evans	<i>Ministry of Supply</i>
Dr. H. F. Gillbe	<i>Ministry of Transport</i>
Mr. G. Smith, M.B.E.	<i>Ministry of Works</i>
Mr. E. J. Stewart	<i>Association of Public Lighting Engineers</i>
Dr. D. Chandler	<i>British Commercial Gas Association</i>
Mr. C. Rodgers, O.B.E.	<i>British Electrical and Allied Manufacturers Association</i>
Mr. V. W. Dale	<i>British Electrical Development Association</i>
Mr. W. J. Jones	<i>Electric Lamp Manufacturers Association</i>

ILLUMINATION INDUSTRY COMMITTEE (continued)

Mr. Guy Campbell	}	<i>Electric Light Fittings Association</i>
Dr. S. English		
Mr. E. J. C. Bowmaker	}	<i>Glass Manufacturers Federation</i>
Mr. G. Marchand		
Mr. R. O. Ackerley	}	<i>Illuminating Engineering Society</i> <i>Institution of Electrical Engineers</i>
Dr. H. Buckley		
Mr. J. S. Dow	}	<i>Illuminating Engineering Society</i>
Mr. L. H. McDermott		
Mr. W. Phoenix		<i>Incorporated Municipal Electrical Association</i>
Mr. H. C. Weston		<i>Industrial Health Research Board</i>
Prof. MacGregor-Morris	}	<i>Institution of Electrical Engineers</i>
Sir Clifford Paterson, F.R.S.		
Mr. J. W. J. Townley		
Mr. J. E. Davis	}	<i>Institution of Gas Engineers</i>
Mr. E. V. Evans		
Mr. F. C. Smith		
Mr. E. J. Elford		<i>Institution of Municipal and County Engineers</i>
Prof. H. Hartridge		<i>Medical Research Council</i>
.....		<i>National Gas Council</i>
Mr. R. J. Rogers	}	<i>Society of British Gas Industries</i>
Mr. R. Crawford Sugg		
Mr. B. P. Dudding	}	<i>Society of Glass Technology</i>
Prof. W. E. S. Turner, O.B.E., F.R.S.		
Mr. A. Cunningham	}	<i>Railway Companies of Great Britain</i>
Mr. E. Morgan		

IRON AND STEEL INDUSTRY COMMITTEE

Chairman : Sir John Duncanson

Mr. W. A. D. Forbes	}	<i>Admiralty</i>
Capt. I. G. Maclean, R.N., O.B.E.		
Mr. C. H. Mundon		
Mr. G. W. Gundry		<i>Board of Trade</i>
Mr. W. E. Hogg		<i>Crown Agents for Colonies</i>
Mr. L. N. Duguid		<i>Factory Department, Ministry of Labour</i>
Mr. H. Symon		<i>Ministry of Health</i>
Chief Inspector of Armaments	}	<i>Ministry of Supply</i>
Mr. J. C. W. Humfrey, O.B.E.		
Dr. H. Sutton		

IRON AND STEEL INDUSTRY COMMITTEE (continued)

The Director	<i>National Physical Laboratory</i>
Mr. P. B. Henshaw	<i>Alloy Steels Association</i>
Mr. A. C. Dean	<i>Association of Consulting Engineers</i>
Mr. C. C. Clarke	<i>Association of Drop Forgers and Stampers</i>
Mr. J. G. Pearce	<i>British Cast Iron Research Association</i>
Mr. C. Rodgers, O.B.E.	<i>British Electrical and Allied Manufacturers Association</i>
Mr. A. S. Pye-Smith	<i>British Engineers' Association</i>
Dr. A. M. Burdon	} <i>British Iron and Steel Federation</i>
Mr. Langton Highton	
Mr. T. Jolly	
Dr. A. McCance	
Mr. J. Mitchell	
Dr. C. Sykes	
Mr. H. C. Waterston	
Mr. H. Williams	
Mr. William Rennie	<i>British Ironfounders Association</i>
Mr. A. S. Pearce	<i>British Steel Wire Industries Association</i>
Mr. T. Stevenson	<i>British Steelwork Association</i>
Mr. G. Roberts	<i>Federation of Civil Engineering Contractors</i>
Mr. W. J. Dawson	<i>General Steel Casting Association</i>
Mr. J. Gardom	<i>Institute of British Foundrymen</i>
Mr. James Turnbull, O.B.E.	<i>Institute of Marine Engineers</i>
Mr. H. S. Bavister	} <i>Institution of Automobile Engineers</i>
Mr. A. E. Bush	
Mr. E. F. Law	<i>Institution of Civil Engineers</i>
Mr. Ewart S. Andrews	<i>Institution of Structural Engineers</i>
Mr. J. Sinclair Kerr	<i>Iron and Steel Industrial Research Council</i>
Mr. R. A. Hacking	<i>Iron and Steel Trades Employers Association</i>
Mr. F. H. Saniter	<i>Iron and Steel Institute</i>
Mr. J. Smith	<i>National Ironfounding Employers Association</i>
Mr. J. S. Boyd	<i>Shipbuilding Employers' Federation</i>
Mr. E. Marriott	<i>Society of British Aircraft Constructors</i>
Dr. S. F. Dorey	<i>Lloyds Register of Shipping</i>
Mr. O. V. Bulleid	} <i>Railway Companies of Great Britain</i>
Mr. W. K. Wallace	

IRONMONGERY AND SANITARY FITTINGS INDUSTRY COMMITTEE

Chairman : Sir Dudley Pryke, Bart.

Director of Building Research	<i>Department of Scientific and Industrial Research</i>
Mr. S. Pointon Taylor	<i>Ministry of Health</i>
Mr. J. R. Arthur	<i>Ministry of Works</i>
—	<i>Ministry of Works (Standards Section)</i>
Mr. E. E. Tansom Mr. C. E. A. Wyatt	} <i>London County Council</i>
Mr. W. R. Blair Mr. J. Galbraith Sneddon	} <i>British Ironfounders' Association</i>
Mr. A. H. Wilson	{ <i>British Plastics Federation Limited</i> <i>British Plastics Hardware Association</i>
Mr. J. G. Jefferson Mr. W. M. Law	} <i>Institution of Municipal and County Engineers</i>
Mr. V. E. Beaumont	<i>British Lock and Latch Manufacturers' Association</i>
Mr. E. N. Hiley	<i>National Brassfoundry Association</i>
Mr. K. Bland Mr. J. J. Holloway, I.S.O.	} <i>National Federation of Building Trades</i> <i>Employers</i>
Mr. S. H. Deadman Mr. Herbert Hawkins	} <i>National Federation of Ironmongers</i>
Mr. J. Alan Slater	<i>Royal Institute of British Architects</i>
Mr. W. E. Kenrick	<i>Cast Butt Hinge Manufacturers</i>

JUTE INDUSTRY COMMITTEE

Chairman : Colonel L. E. Hill

Mr. W. Hope Pilcher Mr. George E. Scott Mr. W. H. Valentine	} <i>The Association of Jute Spinners and Manufacturers.</i>
Mr. Neil Leitch Mr. J. Fergus Ramsay	} <i>Dundee Jute and Linen Goods Merchants' Association</i>
Mr. Harold Foulkes Mr. W. H. Sulis	} <i>United Kingdom Jute Goods Association</i>
Mr. W. G. Atkins	<i>Indian Jute Mills Association Research Institute</i>
Mr. Frank S. Cathro	<i>Hon. Secretary</i>

LEATHER AND TANNING MATERIAL INDUSTRY COMMITTEE

Chairman : Mr. H. Withinshaw

Mr. J. R. Blockey Sir E. Penton, K.B.E., C.I.C.	} <i>Ministry of Supply</i>
Mr. H. Bradley, D.I.C., A.R.S.C., B.S.C.	} <i>British Boot, Shoe and Allied Trades Research</i>
Dr. A. T. McKay	
Mr. R. N. Johnson Dr. D. J. Lloyd	} <i>British Leather Manufacturers Research Association</i>
Mr. P. Barker Mr. S. Briggs Mr. W. Brown Mr. C. Cartwright Mr. A. Muirhead Mr. N. Richardson Mr. H. K. Wigzell	} <i>Federation of Curriers, Light Leather Tanners and Dressers Incorporated</i>
Mr. John Atkin Dr. D. Burton Mr. F. H. Quinn	} <i>International Society of Leather Trades' Chemists</i>
Mr. D. A. Brearley Mr. H. J. Hempton Mr. C. C. Posnett Mr. A. M. Southall Mr. D. Walker Mr. D. Weaver	} <i>United Tanners' Federation</i>

MECHANICAL ENGINEERING INDUSTRY COMMITTEE

Chairman : Sir William Stanier, F.R.S.

Mr. W. A. D. Forbes Engineering Captain F. E. Clemitsen, R.N.	} <i>Admiralty</i>
Mr. W. E. Hogg	<i>Crown Agents for the Colonies</i>
Dr. G. A. Hankins	<i>Department of Scientific and Industrial Research</i>
Mr. Julian S. Tritton	<i>High Commissioner for India</i>
Mr. C. W. Price	<i>Home Office</i>
Capt. G. P. Adams, R.N. (Retd.)	<i>Ministry of Supply</i>
Col. A. H. C. Trench	<i>Ministry of Transport</i>
Mr. A. G. Ramsey, O.B.E.	<i>Ministry of Works</i>
Major A. E. Chipperfield	<i>War Office</i>
Mr. J. E. Sears, C.B.E.	<i>National Physical Laboratory</i>
Mr. H. W. L. Kearns, C.B.E.	<i>Machine Tool Trades Association</i>

MECHANICAL ENGINEERING INDUSTRY COMMITTEE (continued)

Mr. E. Aylon	<i>Agricultural and Road Machinery Manufacturers Association</i>
Mr. W. A. Tookey	<i>Association of Consulting Engineers (Incorporated)</i>
Mr. B. L. Broadbent	<i>British Chemical Plant Manufacturers Association</i>
Mr. E. Lacy-Hulbert	<i>British Compressed Air Society</i>
Mr. G. Arrowsmith	} <i>British Electrical and Allied Manufacturers Association</i>
Mr. B. Pochobradsky	
Mr. C. Rodgers	
Sir Richard W. Allen	} <i>British Engineers Association</i>
Mr. A. W. Berry	
Mr. C. H. Davy	
The Director	} <i>British Iron and Steel Federation</i>
Mr. J. E. James	
Mr. I. V. Robinson	<i>British Marine Oil-Engine Manufacturers Association</i>
Mr. J. Carnaghan	} <i>Institute of Marine Engineers</i>
Mr. R. S. Kennedy	
The Secretary	<i>Institute of Petroleum</i>
Mr. C. K. Edwards	<i>Institution of Automobile Engineers</i>
Prof. F. C. Lea, O.B.E.	<i>Institution of Civil Engineers</i>
Mr. John Terrace	<i>Institution of Gas Engineers</i>
Mr. J. Roger Preston	<i>Institution of Heating and Ventilating Engineers</i>
The Secretary	} <i>Institution of Mechanical Engineers</i>
Mr. C. Bentham	
Mr. Asa Binns	
Mr. A. C. Hartley	
Mr. H. A. Hartley	<i>Institution of Production Engineers</i>
Mr. D. N. Walker	<i>Internal Combustion Engine Manufacturers' Association</i>
Mr. F. S. Whalley	<i>Locomotive Manufacturers Association</i>
Mr. F. H. Bullock	<i>Engineering Insurance Companies</i>
Mr. E. Thompson	<i>Railway Clearing House</i>
Mr. O. Bulleid	{ <i>Railway Companies of Great Britain</i>
Mr. H. G. Ivatt	
Professor L. Aitchison	<i>Institution of Mechanical Engineers</i>
Mr. H. H. Broughton	<i>Railway Companies of Great Britain</i>
Dr. H. L. Guy, C.B.E., F.R.S.	
Mr. A. L. Haas, I.S.O.	
Mr. F. W. Hawksworth	
Mr. G. Stevenson Taylor,	
O.B.E.	

NATURAL STONE AND QUARRY PRODUCTS INDUSTRY COMMITTEE

Chairman: Sir George H. Burt, K.B.

Mr. H. C. King	<i>Admiralty</i>
Director of Building Research	<i>Department of Scientific and Industrial Research</i>
Mr. S. Pointon Taylor	<i>Ministry of Health</i>
Chief Engineer	<i>Ministry of Transport</i>
Mr. D. N. Daunton	<i>Ministry of Works</i>
—	<i>Ministry of Works (Standards Section)</i>
Mr. N. G. Mulroy	<i>British Granite and Whinstone Federation</i>
Mr. J. Hadfield	} <i>British Limestone (Roadstone) Federation</i>
Mr. W. R. C. Hockin	
Mr. J. Singleton-Green	
Mr. P. A. Valtou	
Mr. E. E. Way	} <i>British Stone Federation</i>
Mr. E. Wettern	
Mr. John Setchell	<i>English Slate Quarries Association</i>
Mr. A. R. Bates	} <i>Federated Quarry Owners of Great Britain</i>
Mr. J. R. Fearn	
Mr. H. Fletcher	
Mr. G. H. Hodgson	
Mr. P. A. Valtou	
Mr. J. J. Harrison	<i>Federation of Civil Engineering Contractors</i>
Mr. S. McPherson	<i>Institute of Quarrying</i>
Mr. Frederick S. Snow	<i>Institution of Civil Engineers</i>
Mr. P. V. Marchant	} <i>Institution of Municipal and County Engineers</i>
Mr. F. Oliver	
Mr. J. Pickering	
Mr. E. R. Knight	<i>Institution of Structural Engineers</i>
Mr. R. Y. Parkinson	<i>Lime and Limestone Federation of Great Britain</i>
Mr. E. A. Damer	} <i>National Federation of Building Trades Employers</i>
Mr. J. J. Holloway, I.S.O.	
Mr. J. N. More	<i>North Wales Slate Quarries Association</i>
Mr. R. Wakelin	<i>Royal Institute of British Architects</i>
Mr. H. K. Symington	<i>Scottish Freestone Quarry Masters Association</i>

NON-FERROUS METALS INDUSTRY COMMITTEE

Chairman : Sir A. J. G. Smout

Mr. W. A. D. Forbes	}	<i>Admiralty (Electrical Department)</i>
Mr. H. D. MacLaren		
Lt.-Comm. H. T. Lewis	}	<i>Admiralty (Engineer in Chief's Department)</i>
Captain I. G. MacLean		
Mr. C. H. Mundon		<i>Admiralty (Naval Construction Department)</i>
Mr. W. L. Watson		<i>Crown Agents for the Colonies</i>
Mr. F. O. Barralet		<i>General Post Office</i>
Mr. J. S. Tritton		<i>High Commissioner for India</i>
Chief Inspector of	}	<i>Ministry of Supply</i>
Armaments		
Mr. J. C. W. Humphrey, O.B.E.		
Dr. H. Sutton		
Dr. E. G. West		<i>Aluminium Development Association</i>
Mr. J. S. Tritton		<i>Association of Consulting Engineers</i>
Mr. H. W. Clarke		<i>Brass and Copper Tube Association</i>
Mr. A. S. Hollings		<i>Brass Wire Association</i>
Dr. C. J. Smithells		<i>British Aluminium Co. Ltd.</i>
Mr. J. V. Hardwick	}	<i>British Electrical and Allied Manufacturers Association</i>
Mr. H. M. McLean		
Mr. C. Rodgers, O.B.E.		
Mr. G. L. Bailey		<i>British Non-Ferrous Metals Research Association</i>
Dr. J. L. Miller		<i>Cable Makers' Association</i>
Mr. C. H. Carder		<i>Cold Rolled Brass and Copper Association</i>
Mr. G. W. Preston		<i>Copper Development Association</i>
Dr. W. E. Alkins		<i>High Conductivity Copper Association</i>
Mr. J. W. Gardom, C.B.E.		<i>Institute of British Foundrymen</i>
Dr. R. Genders, M.B.E.	}	<i>Institute of Metals</i>
Mr. K. Headlam-Morley		
Professor R. S. Hutton		
Mr. A. J. Murphy		
Professor L. Aitchison	}	<i>Institution of Automobile Engineers</i>
Mr. J. F. Ronca, M.B.E.		
Mr. W. A. C. Newman		<i>Institution of Mining and Metallurgy</i>
Mr. J. F. Paige		<i>Light Metal Founders Association</i>
Mr. P. W. Smith		<i>London Metal Exchange</i>
Dr. W. E. Alkins		<i>Manufactured Copper Association</i>
Dr. L. B. Pfeil		<i>Mond Nickel Co. Ltd.</i>
Mr. E. N. Hiley		<i>National Brassfoundry Association</i>

NON-FERROUS METALS INDUSTRY COMMITTEE (continued)

Mr. W. H. Henman	<i>Nickel Silver Association</i>
Lt.-Col. A. S. W. Dore, D.S.O.	<i>Sheet Makers Conference</i>
Mr. W. E. Cooper	<i>Society of British Aircraft Constructors Limited</i>
Mr. K. Brozyna	<i>Society of Motor Manufacturers and Traders Limited</i>
Mr. R. L. H. Lancaster	<i>United Kingdom Lead Manufacturers Association</i>
Mr. A. Reynolds	<i>Wrought Light Alloys Association</i>
Mr. R. Lewis Stubbs	<i>Zinc Development Association</i>

OILS, FATS, GREASES (OTHER THAN PETROLEUM AND TAR) AND SOAPS INDUSTRY COMMITTEE

Chairman : Mr. R. E. Huffam

Mr. H. Hollis	<i>Ministry of Supply</i>
Mr. R. Murrin Drake, O.B.E.	<i>Association of British Chemical Manufacturers</i>
The Secretary	<i>Federation of Bone Users and Allied Trades Limited</i>
Mr. Thornley	} <i>Margarine Manufacturers' Association</i>
Mr. G. L. Salton	
Mr. C. J. Seed	<i>Soap Makers and Fat Splitters' Federation</i>
Mr. D. Allen	} <i>Soapmakers' Federation</i>
Mr. A. H. Charlton	
Mr. F. H. Terleski	
Sir Francis Boys, K.B.E.	<i>British Melters Limited</i>
Mr. A. N. Wigner	<i>Compound Manufacturers</i>
Mr. W. Groves	<i>Eastern By-Products Limited</i>
Mr. E. B. Lofts	<i>Fabon Limited</i>

PAPER INDUSTRY COMMITTEE

Chairman : Mr. L. G. Cottrall

Mr. E. L. Hill	<i>Ministry of Supply</i>
Mr. B. S. Baker	<i>His Majesty's Stationery Office</i>
Mr. J. E. Pickering	} <i>National Association of Paper Merchants</i>
Mr. C. J. Thorne	

PAPER INDUSTRY COMMITTEE (continued)

Mr. A. H. Bruce	}	<i>Paper Makers' Association</i>
Mr. E. E. Capon		
Mr. R. H. Clapperton		
Mr. Cuthbert Dixon		
Mr. E. L. Fifoot, D.S.O.		
Dr. Julius Grant		
Dr. H. Ainsworth Harrison		
Mr. H. E. Higginson		
Mr. F. Huckle		
Mr. F. H. Jackson		
Mr. L. C. S. Lewsey		
Dr. J. L. A. MacDonald		
Mr. P. McCarthy		
Mr. G. E. Oswick	}	<i>Printing and Allied Trades Research Association</i>
Mr. A. L. Sharpe		
Mr. F. H. Llewellyn Thomas		
Mr. W. Whiteley		
Dr. G. L. Riddell		<i>Railway Companies of Great Britain</i>
Mr. J. O'Neill		

PEST CONTROL PRODUCTS INDUSTRY COMMITTEE

Chairman : Mr. H. J. Jones

Mr. A. J. Holden		<i>Association of British Chemical Manufacturers</i>
Mr. E. T. Bugge	}	<i>Association of British Insecticide Manufacturers</i>
Mr. J. S. Mitchell		
Dr. T. S. West		
Mr. R. J. Hope	}	<i>Association of British Sheep and Cattle Dip Manufacturers</i>
Mr. Duncan Robertson		
Mr. F. C. Seager		
Mr. H. A. Smith		
Dr. E. Holmes	}	<i>Industrial Pest Control Association</i>
Mr. C. S. Kregor		
Mr. A. F. McIntosh		
Mr. S. F. Sprange		
Mr. W. A. Williams		

PETROLEUM EQUIPMENT INDUSTRY COMMITTEE

Chairman : Mr. J. A. Oriel

Mr. B. J. Ellis		<i>Ministry of Fuel and Power</i>
Dr. D. Clayton		<i>Ministry of Supply</i>
Mr. T. L. Bonstow	}	<i>Council of British Manufacturers Petroleum Equipment</i>
Dr. R. C. Fisher		
Dr. A. Ivanoff		
Mr. L. B. Lambert		
Mr. K. M. Leach		
Mr. J. Mair		
Mr. R. Wilson		

PETROLEUM EQUIPMENT INDUSTRY COMMITTEE (continued)

Mr. A. C. Hartley, C.B.E.	<i>Institute of Petroleum</i>
Mr. W. C. A. Bowies	} <i>Petroleum Board</i>
Mr. E. Evans-Jones	
Mr. W. B. Heaton	
Mr. R. C. H. Toye	
Mr. C. J. Wright	
Mr. J. D. Watt	<i>Oil Companies Materials Secretariat</i>
Secretary	<i>Anglo-Iranian Oil Company</i>

PETROLEUM INDUSTRY COMMITTEE

Chairman : Mr. J. A. Oriel

Eng. Capt. H. Moy, C.B.E., O.B.E., R.N.	<i>Admiralty</i>
Dr. F. B. Thole	<i>Ministry of Fuel and Power</i>
Lt.-Col. S. J. M. Auld	} <i>Petroleum Board</i>
Mr. C. Chilvers	
Mr. G. H. Coxon	
Mr. A. J. Sears	
Mr. H. C. Tett	
Mr. F. H. Garner	} <i>Institute of Petroleum</i>
Mr. C. A. P. Southwell	
Mr. W. H. Hoffert	<i>National Benzole Association</i>
Mr. H. Moore	<i>National Lubricating Oil and Grease Federation</i>
Mr. J. M. Leonard	<i>Society of Motor Manufacturers and Traders</i>
Dr. E. H. R. Davies	<i>Imperial Chemical Industries Ltd.</i>

PHOTOGRAPHIC INDUSTRY COMMITTEE*

Chairman : Dr. D. A. Spencer

Mr. W. A. J. Paul	<i>General Post Office</i>
Mr. H. Wrighton	<i>Ministry of Supply</i>
Mr. J. Guild	<i>National Physical Laboratory</i>
Mr. A. G. Greatbatch	} <i>War Office</i>
Mr. J. A. F. Wilkinson	
Mr. E. R. Davies	} <i>Associated Sensitized Materials Manufacturers</i>
Mr. F. W. Greenwood	
Mr. T. Midgley Illingworth	
Dr. S. O. Rawling	

* This Committee is in process of re-organisation.

PHOTOGRAPHIC INDUSTRY COMMITTEE (continued)

Mr. F. J. Butcher	}	<i>British Photographic Manufacturers Association</i>
Mr. H. A. Carter		
Mr. J. Terrett		
Mr. R. J. Bracey		<i>British Scientific Instrument Research Association</i>
Mr. J. M. Waldram		<i>Illuminating Engineering Society</i>
Mr. Percy W. Harris	}	<i>Photographic Advisory Committee</i>
Mr. F. B. Phillips		
Dr. R. W. B. Pearse		<i>Physical Society</i>
Mr. W. H. Dimsdale	}	<i>Royal Photographic Society</i>
Mr. J. W. Glassett		
Dr. G. B. Harrison		
Mr. F. J. Tritton		

PIGMENT PAINT AND VARNISH INDUSTRY COMMITTEE

Chairman: Mr. C. A. Klein

Superintending Scientist	<i>Admiralty</i>
Mr. F. W. Graham	<i>Air Ministry</i>
Mr. R. H. Harry Stanger	<i>Crown Agents</i>
Director of Building Research	<i>Department of Scientific and Industrial Research</i>
Mr. C. E. Barton	<i>Government Laboratory</i>
Chief Chemical Inspector	<i>Ministry of Supply</i>
Mr. V. H. N. Roles	<i>Ministry of Works</i>
—	<i>Ministry of Works (Standards Section)</i>
Mr. G. Palmer	<i>Royal Aircraft Establishment</i>
Dr. H. Samuels	<i>British Colour Makers Association</i>
Mr. A. J. Holden	<i>Association of British Chemical Manufacturers</i>
Mr. James Lawrence	<i>Institute of British Decorators</i>
Mr. E. J. Bond	} <i>National Federation of Associated Paint Colour and Varnish Manufacturers of the United Kingdom</i>
Mr. S. W. Greig	
Dr. V. G. Jolly	
Mr. C. O. Morley	
Mr. E. W. Plowman	
Mr. C. J. A. Taylor	
Mr. W. E. Wornum	<i>Oil and Colour Chemists Association</i>
Mr. R. Gaudin	} <i>Paint Manufacturers and Allied Trades Association</i>
Mr. N. Mayfield	
Mr. F. R. Stacy	

PIGMENT PAINT AND VARNISH INDUSTRY COMMITTEE (continued)

Mr. F. Fancutt	<i>Railway Companies of Great Britain</i>
Dr. L. A. Jordan	<i>Research Association of British Paint, Colour and Varnish Manufacturers</i>
Mr. S. G. Tinsley	<i>Titanium Pigment Manufacturers Specification Committee</i>
Mr. J. M. Brown	} <i>Zinc Development Association</i>
Mr. R. Lewis Stubbs	

PLASTICS INDUSTRY COMMITTEE

Chairman : Mr. H. V. Potter

Principal Chemist, Portsmouth	} <i>Admiralty</i>
Mr. R. Wightman	
Mr. W. Hardy	<i>Air Ministry</i>
Mr. C. E. Richards	<i>General Post Office</i>
Dr. M. G. Church	} <i>Ministry of Supply</i>
Mr. N. J. L. Megson	
—	<i>Ministry of Works (Standards Section)</i>
Mr. G. T. Dickson	} <i>British Electrical and Allied Manufacturers' Association</i>
Mr. R. Newbound	
Mr. C. E. M. Coubrough	} <i>British Plastics Federation</i>
Mr. P. A. Delafield	
Dr. W. E. de B. Diamond	
Mr. G. Dring	
Mr. A. A. Heath	
Mr. H. W. Ireland	
Mr. L. T. B. Merriam	
Mr. A. E. Skan	
Mr. A. G. Snell	
Mr. W. C. Wagborne	
Mr. W. B. Owen	<i>British Electrical and Allied Industries Research Association</i>

PRESERVATIVES FOR TIMBER, TEXTILES, LEATHER AND SIMILAR MATERIALS INDUSTRY COMMITTEE

Chairman : Mr. H. W. James

The Director	<i>Building Research Station of the Department of Scientific and Industrial Research</i>
The Director	<i>Forest Products Research Laboratory of the Department of Scientific and Industrial Research</i>
Mr. C. H. Miller	<i>Ministry of Supply</i>
Dr. D. J. Branscombe Mr. R. Murdin Drake Mr. H. E. Hickson Mr. C. W. Nichol	} <i>Association of British Chemical Manufacturers</i>
Mr. W. G. Adam Commander C. Buist Mr. C. F. Dutton Major A. G. Saunders Mr. J. Simpson	
Mr. C. B. Gabriel Mr. R. C. B. Gardner Mr. C. Montague Smith	
Mr. B. A. Jay	<i>Timber Development Association Limited</i>
Col. J. G. Brockbank Mr. C. W. Grindell	} <i>Timber Trade Federation of the United Kingdom</i>

RAYON INDUSTRY COMMITTEE

Chairman : Sir William Palmer, K.B.E., C.B.

Miss E. M. Feibusch	<i>Board of Trade</i>
Mr. W. Crowther Mr. J. R. Whinfield	} <i>Ministry of Supply</i>
Mr. P. A. Holt	
Mr. N. G. McCulloch	<i>Calico Printers Association</i>
Mr. H. Solman	<i>Silk and Rayon Users Association</i>
Mr. C. M. Whittaker	<i>Society of Dyers and Colourists</i>
Mr. A. E. Delph	<i>Textile Institute</i>
Mr. J. T. Dannhorn Mr. W. Dewhurst Mr. J. Fishwick Mr. T. H. Mather Mr. P. S. Rendall Mr. S. H. Sagar Mr. H. G. Spilman Mr. S. A. Welch	} <i>British Rayon Federation</i>

ROAD ENGINEERING INDUSTRY COMMITTEE

Chairman: Sir Charles Bressey, C.B., C.B.E.

Mr. C. E. Loveridge	<i>Air Ministry</i>
Director of Road Research	<i>Department of Scientific and Industrial Research</i>
Chief Engineer	<i>Ministry of Transport</i>
Mr. H. F. Berry	} <i>Asphalt Roads Association</i>
Mr. E. B. Hart, O.B.E.	
Mr. G. Howard Humphreys	<i>Association of Consulting Engineers</i>
Mr. W. E. Cone	} <i>British Road Tar Association</i>
Mr. H. W. James	
Mr. P. G. Bowie	} <i>Cement and Concrete Association</i>
Major T. R. Grigson	
Mr. G. Barry	} <i>County Surveyors Society</i>
Mr. E. C. Boyce	
Mr. A. E. Peake	
Mr. A. C. Willson	<i>Federation of Civil Engineer Contractors</i>
Major R. G. H. Clements,	} <i>Institution of Civil Engineers</i>
Mr. A. Floyd	
Mr. J. E. Swindlehurst	
Major J. T. Hines, O.B.E.,	<i>Institution of Highway Engineers</i>
M.C.	
Mr. E. J. Elford	} <i>Institution of Municipal and County Engineers</i>
Mr. H. E. Lunn	
Mr. W. P. Robinson, C.B.E.	
Mr. H. E. Brooke-Bradley	<i>Institution of Structural Engineers</i>
Mr. A. J. Dussek	} <i>Road Emulsion and Cold Bituminous Roads Association</i>
Mr. W. F. Rees	
Brig.-Gen. E. G. Wace,	
C.B., D.S.O.	
Mr. J. S. Killick, C.B.E.	<i>Roads Improvement Association</i>

RUBBER INDUSTRY COMMITTEE

Chairman : Mr. A. Healey

Mr. J. Wilson	<i>British Rubber Producers' Research Association</i>
Mr. W. Bowden	} <i>Federation of British Rubber and Allied Manufacturers Association</i>
Mr. S. A. Brazier	
Mr. T. H. Brooke	
Mr. A. W. F. Chatfield	
Mr. E. G. Clemson	
Mr. E. J. Coles	
Mr. R. J. Farrier	
Mr. J. H. Nicholls	
Mr. R. J. Perrin	
Mr. F. H. Puxty	
Mr. W. H. Reece	
Mr. P. A. Summers	} <i>Institution of the Rubber Industry</i>
Mr. S. D. Sutton	
Mr. F. M. Towle	} <i>Research Association of British Rubber Manufacturers</i>
Dr. W. J. S. Naunton	
Mr. H. Rogers	} <i>Rubber Growers' Association</i>
Dr. S. S. Pickles	
Mr. G. E. Coombs	
Mr. G. Martin	
Dr. Edgar Rhodes	

SOLID FUEL INDUSTRY COMMITTEE

Chairman : Mr. J. G. Bennett

—	<i>Admiralty</i>
Dr. W. A. Macfarlane	} <i>Ministry of Fuel and Power</i>
Mr. R. G. Thatcher	
Mr. H. Symon	<i>Ministry of Health</i>
Mr. A. C. Pallot	<i>Ministry of Works (Standards Section)</i>
Mr. P. A. Evans	<i>Association of Boiler Setters Chimney and Furnace Constructors</i>
Mr. G. A. J. Begg	<i>Association of British Chemical Manufacturers</i>
Mr. E. Edwin Griffiths	<i>Association of Consulting Engineers</i>
Mr. W. R. Beswick	} <i>British Chemical Plant Manufacturers Association</i>
Mr. J. Davidson Pratt, C.B.E.	
Mr. W. R. Edwards	
Dr. G. E. Foxwell*	
The Secretary	} <i>British Coal Utilisation Research Association</i>
Mr. R. A. Duncan	
Mr. B. Samuels	<i>British Engineers' Association</i>
	<i>British Electrical and Allied Manufacturers Association</i>
	<i>Combustion Appliance Manufacturers Association</i>
	<i>Water Tube Boiler Makers' Association</i>

*Also Society of Chemical Industry

SOLID FUEL INDUSTRY COMMITTEE (continued)

Hon. Mrs. E. C. Rollo	<i>Women's Advisory Council on Solid Fuel</i>
Mr. G. W. Lee	<i>British Hard Coke Association</i>
Mr. E. C. Evans The Director	} <i>British Iron and Steel Federation</i>
Mr. J. M. Primrose The Secretary	
Mr. J. D. Peattie	} <i>British Ironfounders' Association</i>
Mr. T. P. Carr	
Mr. P. A. H. Elliott	} <i>Central Electricity Board</i>
Mr. C. H. Williams The Secretary	
Mr. H. Nimmo	} <i>Coke Oven Managers' Association</i>
Mr. G. W. Andrew	
Dr. A. Parker	} <i>Combustion Appliance Manufacturer's Association</i>
Mr. V. C. Faulkner	
Mr. J. Bruce	} <i>Electricity Commission</i>
Mr. S. McEwen	
Dr. G. W. Himus	} <i>Federation of British Industries</i>
Mr. D. G. Lewis (Deputy for Mr. J. Roger Preston)	
The Secretary	} <i>Fuel Research Board</i>
Mr. Roger Preston	
Mr. W. Dowling	} <i>Institute of British Foundrymen</i>
Mr. W. F. Harlow	
Mr. J. Mayer	} <i>Institute of Fuel</i>
Mr. A. F. Webber	
Mr. L. J. King	} <i>Institution of Chemical Engineers</i>
Mr. A. F. Ure	
Mr. W. L. Boon	} <i>Institution of Heating and Ventilating Engineers</i>
Mr. J. W. Gardom	
The Secretary	} <i>Institution of Marine Engineers</i>
Mr. M. Hinton Jones	
Mr. A. J. B. Atkinson	} <i>Institution of Mechanical Engineers</i>
Mr. T. F. C. Potterton	
Mr. F. S. Townend	} <i>International Combustion Limited</i>
Mr. G. H. Fuidge	
Mr. F. A. Greene	} <i>Iron and Steel Institute</i>
	} <i>Ironfounders National Confederation</i>
	} <i>London and Counties Coke Association</i>
	} <i>National Association of Heating and Ventilating and Domestic Engineering Employers</i>
	} <i>Society of British Gas Industries</i>
	} <i>Society of Chemical Industry</i>

TAR PRODUCTS INDUSTRY COMMITTEE

Chairman : Mr. S. Billbrough

Mr. E. W. S. Press	<i>Chemical Inspection Department, Ministry of Supply</i>
Mr. C. E. Carey	} <i>Association of British Chemical Manufacturers</i>
Mr. G. Dodd	
Mr. R. Murdin Drake, O.B.E.	
Mr. N. H. Graesser	
Mr. J. G. Leonard	
Mr. H. Thompson	
Mr. H. H. Bates	} <i>Association of Tar Distillers</i>
Mr. S. Billbrough	
Col. W. A. Bristow	
Mr. C. Lord	
Mr. R. B. Robinson	
Major A. G. Saunders	
Mr. J. Simpson	} <i>National Benzole Association</i>
Mr. A. C. Tait	
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Secretaria de la Economia Nacional,
Mexico, D.F.</p> |
| <p>† Copies of B.S. available for sale.</p> | <p>Peru</p> <p>The Commercial Secretary,
British Consulate,
Lima.</p> |
| | <p>Uruguay</p> <p>Señor Secretario,
Instituto Uruguayo de Racionalización
y Normas Técnicas,
Agraciada 1464, Piso 9,
Montevideo.</p> |

EUROPE

- | | |
|--|---|
| <p>Belgium</p> <p>†Association Belge de Standardisation,
63, Rue Ducale,
Brussels.</p> | <p>Denmark</p> <p>†Dansk Standardiseringsraad,
Vesterbrogade 1A,
Copenhagen V.</p> |
| <p>Eire</p> <p>United Kingdom Trade Commissioner,
69, Merrion Square,
Dublin, C.17.</p> | |

EUROPE (continued)

Finland

†Suomen Standardisoimislautakunta,
Kanalg 2,
Helsinki.

France

†Association Française de Normalisation,
23, Rue Notre-Dame des Victoires,
Paris, 2^e.

Holland

†Hoofdd commissie voor de Normalisatie
in Nederland (H.C.N.N.),
L. Houtstraat 13a,
The Hague.

Italy

†Ente Nazionale per l'Unificazione
nell' Industria, UNI,
Piazza Armando Diaz 2,
Milan.

Norway

†Norges Standardiserings-Forbund,
Kongens gt. 15,
Oslo, 5.

Poland

†Polski Komitet Normalizacyjny
przy,
Prezydium Rady Ministrow
ul, Wiejska 21 m.47,
Warsaw.

Portugal

Exmo. Snr. Presidenti do Conselho,
Directivo da Ordem Dos Engenheiros,
Avenida Antonio Augusto de Aguiar,
No. 1,
Lisbon.

Russia

The Commercial Counsellor,
British Embassy,
Moscow.

All-Union Committee of Standards,
Stanislavsky Street. 18,
Moscow.

Spain

The Commercial Secretary,
British Embassy,
Alcala Galiano 5,
Estafeta No. 4,
Madrid.

Sweden

The Commercial Counsellor,
Strandvagen 82,
Stockholm.

†Sveriges Standardiseringskommission,
Stockholm, 16.

Switzerland.

†Schweizerische Normen-Vereinigung
VSM-Normalienbureau,
Lavaterstrasse, 11,
Zurich, 12.

†Association Suisse des Electriciens,
Seefeldstrasse, 301,
Zurich, 8,

ASIA AND NORTH AFRICA

China

†Sec. Gen. Chinese Standards
Committee,
7, Minshen Road,
P'eh P'eh,
Chungking.

Egypt

The Commercial Secretary,
The Residency,
Cairo.

The Egyptian Government,
Minister of Communications,
Cairo.

† Copies of B.S. available for sale.

Palestine

†Standards Institution of Palestine,
200, Dizengoff Road,
Tel Aviv.

Persia

The Commercial Secretary,
British Legation,
Teheran.

Turkey

The Commercial Secretary,
British Embassy,
Angora.

In addition the Crown Agents for the Colonies have complete sets of British Standards in the following Colonies :

Malaya	Lagos,	Gold Coast
Hongkong	Nigeria	Gibraltar
Zanzibar	Lusaka,	Fiji
Entebbe,	Northern Rhodesia	Ceylon
Uganda	St. John's,	Cyprus
Trinidad	Newfoundland	Maseru,
Dar-Es-Salaam,	Malta	Basutoland
Tanganyika Territory	Mauritius	British Honduras
Zomba,	Nairobi,	British Guiana
Nyasaland	Kenya	Barbados
St. Helena	Jamaica	Bahamas
Sierra Leone	Gambia	Bermuda
Seychelles		

British Standards can be purchased from the following agents :

INDIA

Messrs. Thacker & Co.,
Bombay.

Messrs. Higginbothams,
Madras.

SOUTH AFRICA

The Central News Agency Ltd.,
(Handel House Branch),
Eloff Street,
P.O. Box 1161,
Johannesburg.

OVERSEA STANDARDS

Canadian, Australian, New Zealand, South African and U.S.A. standards may be loaned or purchased direct from the British Standards Institution.

BRITISH STANDARDS ISSUED SINCE 1944-45 YEARBOOK

NEW STANDARDS ISSUED

B.S.

- 12 : 1940 Ordinary Portland and rapid-hardening Portland cements (*Basic English edition*)
- 381 WD : 1945 Flat colours for wall decoration. Specimen colour cards to B.S. 381 WD : 1945.
- 1100 : Part 2 : 1944 Production control in the small factory.
- 1100 : Part 3 : 1945 Application of production control.
- 1100 : Part 5 : 1944 Stock control and storekeeping.
- 1151 : Part 2 : 1945 Guaranteed minimum reckoners for the building and civil engineering contracting industries.
- 1175 : 1944 Sizes of stress-graded softwood timber.
- 1176 : 1944 Air drying black paint for cooking appliances.
- 1177 : 1944 Pitch mastic flooring incorporating lake asphalt.
- 1178 : 1944 Milled lead sheets and strip for building purposes.
- 1179 : 1944 Glossary of terms used in the gas industry.
- 1180 : 1944 Concrete bricks and fixing bricks.
- 1181 : 1944 Clay flue linings and chimney pots.
- 1182 : 1944 Non-ferrous thimbles (spigot and socket) and ferrules (sleeve).
- 1183 : 1944 Space required for domestic electrical appliances.
- 1184 : 1944 Non-ferrous (excluding lead) traps and wastes.
- 1185 : 1944 Stoptap guard pipes.
- 1186 : 1944 Grading of softwood joinery.
- 1187 : 1944 Wood blocks (interlocking) for floors.
- 1188 : 1944 Ceramic lavatory basins.
- 1189 : 1944 Cast iron baths for domestic purposes (dimensions and workmanship).
- 1190 : 1944 Hollow clay building blocks.
- 1191 : 1944 Gypsum and anhydrite building plasters.
- 1192 : 1944 Architectural and building drawing office practice.
- 1193 : 1945 Light-sensitive film and paper for recording instruments.
- 1194 : 1944 Concrete porous pipes for under-drainage.
- 1195 : 1944 Kitchen fittings and equipment.
- 1196 : 1944 Clayware field drain pipes.
- 1197 : 1944 Concrete flooring tiles and fittings (dimensions and workmanship).
- 1198, 1199, 1200, 1201 : 1944 *Included in B.S. 882 (see revised standards).*
- 1202 : 1944 Wire nails and cut nails for building purposes.
- 1203, 1204 : 1945 Synthetic resin adhesives for wood.
- 1205 : Part 1 : 1945 Cast iron gutters, fittings and accessories, half round gutters.
- 1205 : Part 2 : 1945 Cast iron gutters, fittings and accessories.
- 1206 : 1945 Fireclay sinks (dimensions and workmanship).
- 1207 : 1944 Hollow glass blocks.
- 1208 : 1945 Semi-rotary pumps hand operated, double acting for water.
- 1209 : 1945 Glass internal sills to wood and metal windows.
- 1210 : 1945 Dimensions of mild steel and brass wood screws.
- 1211 : 1945 Centrifugally cast (spun) iron pipes for water, gas and sewage.
- 1213 : 1945 Ceramic washdown W.C. pans (dimensions and workmanship).
- 1214 : 1945 Hessian sandbags and rot-proofed hessian sandbags.
- 1215 : 1945 Oil stains.
- 1216 : 1945 Jute-insulated cables for electricity supply at voltages not exceeding 660 volts.
- 1217 : 1945 Cast stone.
- 1218 : 1945 Sluice valves for waterworks purposes.
- 1219 : 1945 Printers' and authors' proof corrections.

NEW STANDARDS ISSUED (continued)

B.S.

- 1219C : 1945 Table of symbols for printers' and authors' proof corrections.
- 1220 : 1945 A.C. and D.C. switchboard and motor control equipment.
- 1221 : 1945 Steel fabric for concrete reinforcement.
- 1222 : 1945 Battery-operated electric fences.
- 1223 : 1945 Three-inch seamless necks for drums.
- 1224 : 1945 Electroplated coatings of nickel and chromium on steel and brass.
- 1225 : 1945 Recommended methods for polarographic and spectrographic analysis.
- 1226 : 1945 Draining boards.
- 1227 : 1945 Hinges
- 1228 : 1945 Door bolts, iron, steel and non-ferrous.
- 1229 : 1945 Fireclay wash tubs and sink sets.
- 1230 : 1945 Gypsum plasterboard.
- 1231 : 1945 P.V.C. cables and cords for switchboard panel wiring.
- 1232 : 1945 Natural stone for building.
- 1233, 1234, 1235 : 1945 Copings (clayware, cast concrete and natural stone).
- 1236, 1237, 1238, 1239, 1240 : 1945 Sills and lintels (clayware, cast concrete and natural stone).
- 1241 : 1945 Tarmacadam and tar carpets, gravel aggregate.
- 1242 : 1945 Tarmacadam ' tarpaving ' for footpaths, playgrounds, etc.
- 1243 : 1945 Metal wall ties.
- 1244 : 1945 Metal sinks.
- 1245 : 1945 Metal door frames.
- 1246 : 1945 Metal skirtings, picture rails and angle beads.
- 1247 : 1945 Manhole step irons.
- 1248 : 1945 Wallpapers.
- 1250 Part 1 : 1945 Domestic gas appliances for immediate post-war housing.
Part 1, General specification including space and rating requirements.
- 1251 : 1945 Open fires for domestic purposes.
- 1253 : 1945 Definitions of technical mouldings (plastics).
- 1254 : 1945 W.C. seats (plastics).
- 1255 : 1945 Brackets and supports for lavatory basins and sinks.
- 1256 : 1945 Malleable cast iron and cast copper alloy pipe fittings for steam, water and gas.
- 1257 : 1945 Methods of testing clay building bricks.
- 1259 : 1945 Intrinsically safe electrical apparatus and circuits.
- 1260 : 1945 Jointing paste for flange and similar type joints for gas heated domestic appliances and gas installation pipes in buildings.
- 1261 : 1945 Jointing compound for screwed joints for gas heated domestic appliances and gas installation pipes in buildings.
- 1264 : 1945 Methods of test for transport gas producer fuels.
- 1265, 1266, 1267, 1268 : 1945 Drawing boards and tee squares.
- 1269 : 1945 Titanium pigments (rutile type) for paints and titanium white types 6 and 7 (including amendment No. 2 to B.S. 636 : 1935).
- 1270 : 1945 Schedule of electric discharge lamps for general purposes.
- 1271 : 1945 Proof test for creep quality of carbon steel of boiler plate quality.
- 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280 : 1945 Magnesium alloy ingots and castings.
- 1281 : 1945 Glazed earthenware wall tiles (dimensions and workmanship only).
- 1282 : 1945 Classification of wood preservatives.
- 1283 : 1945 Jewellers ring sticks and ring gauges.
- 1285 : 1945 Wood surrounds for metal windows.
- 1286 : 1945 Clay tiles for floorings (dimensions and workmanship only).
- 1289 : 1945 Pre-cast concrete flue blocks for gas fires and ventilation.
- 1292 : 1945 Storage fitments for living rooms and bedrooms.

NEW AIRCRAFT STANDARDS

B.S.

S100 : 1945 Testing procedure applicable to aircraft steels.

NEW ISSUES OF STA SERIES

STA 25 : 1945 High silicon iron castings.

PD 364 : 1945 Group 6. Aluminium and its alloys (*part of STA 7*).

NEW SPECIAL ISSUES

Handbook No. 3. Building materials and components.

Supplement to Handbook No. 3.

Supplement No. 1 to B.S. 1133 : 1943.

Supplement No. 2 to B.S. 1133 : 1943 (*superseding supplement No. 1*). Recommendations for preservation and packaging in tropical theatres of war.

PD 377 Amendment No. 3 to B.S. 84 : 1940. Truncated Whitworth form screw threads.

PD 420 Methods of protection against corrosion for light gauge steel and wrought iron used in permanent building construction.

NEW ISSUES OF BS/RC SERIES

Special series for radio components for service equipment, prepared by the Inter-Service (Communications) Components Technical Committee.

RC.G/1 General guide on radio components.

RC.G/2 Guide on batching and sampling.

RC.G/110 Guide on fixed resistors.

RC.S/120 Group test-specification for variable resistors.

RC.S/120.1 Test schedule for variable resistors.

RC.G/130 Guide on fixed capacitors.

RC.S/130.1m Test schedule for miniature paper-dielectric fixed capacitors (excluding metallised paper types).

RC.S/130.2m Test schedule for miniature mica-dielectric fixed capacitors.

RC.S/130.6m Test schedule for miniature paper-dielectric capacitors (metallised paper type).

RC.S/130.6m (Issue 2) Test schedule for miniature paper-dielectric capacitors (metallised paper type).

RC.S/130.7m Test schedule for miniature (high K) type ceramic-dielectric fixed capacitors.

RC.S/141 Group test specification for air dielectric rotary variable capacitors.

RC.S/141.1 Test schedule for air dielectric rotary variable capacitors.

RC.S/141.1m Test and performance specification for miniature variable capacitors (air-spaced ganged type).

RC.S/161 Group test specification for relays types K3000 and K600.

RC.S/161.1 Test schedule for relays type K3000.

RC.S/161.2 Test schedule for relays type K600.

RC.S/165.m Group test-specification for miniature relays.

RC.S/165.m. (Issue 2) Group test-specification for miniature relays.

RC.S/165.1m Test schedule for miniature normal type relays.

RC.S/165.4m Test schedule for miniature high-speed type relays.

NEW CODES OF PRACTICE

These codes have been prepared by the Codes of Practice Committee for Civil Engineering, Public Works and Building (formed under the aegis of the Ministry of Works).

- CP 3 : 1944 Limitation of electric discharge lamp lighting.
- CP 4 : 1944 Code of functional requirements of buildings.
Chapter V. Loading.
- CP 5 : 1945 Code of functional requirements of buildings.
Chapter I (B). Sunlight.
- CP 6 : 1945 Code of functional requirements of buildings.
Chapter I (C). Ventilation.
- CP 7 : 1945 Code of functional requirements of buildings.
Chapter VII (F) Provision of artificial light.

REVISED STANDARDS

B.S.

- 2 : 1944 Tramway and dock rails and fishplates.
- 57 : 1944 B.A. bolts, screws, nuts and washers.
- 163 : Part 2 : 1945 Galvanised solid steel wire for signalling purposes.
- 230 : 1945 Visual type portable photometers.
- 341 : 1945 Valve fittings for compressed gas cylinders.
- 348 : 1945 Compressed natural rock asphalt.
- 350 : 1944 Conversion factors and tables.
- 354 : 1945 Photometric integrators.
- 381C : 1944 Colours for ready mixed paints (colour card).
- 402 : 1945 Clay plain roofing tiles and fittings.
- 405 : 1945 Expanded metal (steel) for general purposes.
- 416 : 1944 Cast iron spigot and socket soil, waste and ventilating pipes, fittings and accessories.
- 455 : 1945 Schedule of sizes for locks and latches for doors.
- 459 : Part 1 : 1944 Paneled and glazed wood doors.
- 459 : Part 2 : 1945 Flush wood doors.
- 460 : 1944 Cast iron spigot and socket rainwater pipes, fittings and accessories.
- 473 : 1944 Concrete plain roofing tiles and fittings.
- 482 : 1945 Wrought iron and mild steel hooks for cranes, chains, slings and general engineering purposes.
- 492, 728, 834 : 1944 Precast concrete blocks.
- 493 : 1945 Airbricks and gratings.
- 497 : 1945 Cast manhole covers, road gulley gratings and frames.
- 504 : 1944 Drawn lead traps.
- 529 : 1944 Steel eyebolts. Part 1 : With collars. Part 2 : Without collars for lift suspension.
- 550 : 1945 Concrete interlocking roofing tiles.
- 556 : 1945 Concrete cylindrical pipes and fittings.
- 567 : 1945 Dimensions and workmanship of asbestos cement spigot and socket flue pipes and fittings for gas appliances.
- 569 : 1945 Asbestos cement spigot and socket rainwater pipes, gutters and fittings.
- 582 : 1945 Asbestos cement spigot and socket soil, waste and ventilating pipes and fittings.
- 585 : 1944 Wood stairs with close strings.
- 594 : 1945 Rolled asphalt. Asphaltic bitumen and fluxed lake asphalt (hot process).
- 596 : 1945 Mastic asphalt for roads and footways.
- 644 : Part 1 : 1945 Wood windows and casement doors.
- 659 : 1944 Light gauge copper tubes for water, gas and sanitation.
- 667 : 1945 Photoelectric type portable photometers.
- 680 : 1944 Roofing slates.
- 690 : 1945 Asbestos cement slates and sheets.
- 699 : 1944 Copper cylinders for domestic purposes, grades 1, 2 and 3.
- 758 : 1945 Small domestic hot water supply boilers for solid fuel.
- 802 : 1945 Tarmacadam and tar carpets, granite, limestone or slag aggregate.
- 832 : 1945 Bell transformers, excluding transformers for use in mines.
- 835 : 1945 Asbestos cement spigot and socket flue pipes and fittings (heavy quality) for heating and cooking appliances.
- 864 : 1945 Capillary fittings and compression fittings of copper or copper alloy for use with light gauge copper tube.
- 882, 1198, 1199, 1200, 1201 : 1944 Concrete aggregates and building sands from natural sources.
- 940 : Part 1 : 1944 Grading rules for stress-graded timber.

REVISED STANDARDS (continued)

B.S.

- 953 : 1945 Strength tests for the protective toe-caps of boots used for industrial purposes.
- 970C : 1944 Memorandum to consumers and producers regarding the standardisation of alloy steels.
- 971 : 1944 Wrought steels (prepared by the technical advisory committee of the special and alloy steels committee).
- 973 : 1945 Code of practice for the glazing and fixing of glass for buildings.
- 986 : 1945 Concrete railway sleepers.
- † 989 : 1944 Bitumen and fluxed pitch roofing felts.
- 990 : 1945 Metal casement windows and casement doors.
- 1010 : 1944 Water taps (bib, pillar, globe and stop).
- 1050 : 1945 Visual indicator lamps.
- 1093 : 1944 Pitch mastic flooring.
- 1106 : 1945 Code of practice relating to the use of electronic valves other than cathode ray tubes.
- 1125 : 1945 W.C. flushing cisterns.
- 1151 : 1945 Standard form of time and wages sheet and pay packet for the building and civil engineering contracting industries.
- 1156 : 1945 A.C. and D.C. motors and generators.

† War emergency issue.

REVISED AIRCRAFT STANDARDS

- 4 S 1 : 1945 35-45 ton carbon steel bars for machining for aircraft purposes.
- 3 T 51 : 1945 High pressure seamless copper tubes.

REVISED ISSUES OF STA SERIES

- STA 5 : 1945 Schedule of carbon and alloy steels for general service applications.
- PD 402 : 1945 Group 1. Copper and its alloys (*part of STA 7*).

AMENDMENTS TO BRITISH STANDARDS ISSUED SINCE 1944-45 YEARBOOK

Ref. No.	B.S.
PD 260	5 SP 4 : 1944 Steel pins.
PD 262	1101 : 1943 Pressure paint containers.
PD 263	1079 : 1942 Haemoglobinometers, Haldane type.
PD 264	692 : 1936 Meteorological thermometers.
PD 265	490 : 1943 Rubber conveyor and elevator belting.
PD 266	6 V 3 : 1943 High strength plywood for aircraft.
PD 271	1100 : Part 4 : 1944 Payroll methods.
PD 273	A 17 : 1942 Machined hexagonal headed bolts (aluminium alloy).
PD 274	E 18 : 1939 Electric incandescent lamps for aircraft.
PD 275	1171 : 1944 High duty studs.
PD 277	883 : 1940 Cables and flexible cords for electrical equipment of ships (including electrical propulsion).
PD 278	7 : 1939 Rubber-insulated cables and flexible cords for electric power and lighting for working voltages up to and including 11 kv.
PD 279	A 16 : 1939 Hexagonal steel nuts (ordinary, thin, slotted and castle).
PD 281	970 : 1942 Wrought steels.†
PD 282	1101 : 1943 Pressure paint containers.
PD 285	2 T 35 : 1942 35 tons steel tubes (suitable for welding).
PD 286	2 T 45 : 1942 45 tons steel tubes (suitable for welding).
PD 287	969 : 1941 Tolerances for plain limit gauges.
PD 288	5 SP 4 : 1944 Steel pins.
PD 289	185 : 1940 Glossary of aeronautical terms.
PD 294	1093 : 1943 Pitch mastic flooring.
PD 295	587 : 1940 Motor starters and controllers.
PD 296	741 : 1937 Flameproof electric motors.
PD 297	171 : 1936 Transformers for power and lighting and 355 : 1936 Mining-type transformers.
PD 298	170 : 1936 Transformers for power and lighting.
PD 299	168 : 1926 Industrial electric motors and generators.
PD 300	169 : 1925 Large electric generators and motors (rating permitting overloads).
PD 301	226 : 1925 Large electric generators and motors (continuous maximum rating).
PD 304	1157 : 1944 Tapping drill sizes.
PD 305	2 B 8 : 1930 Phosphor bronze castings.†
PD 306	5 T 4 : 1931 Aluminium alloy tubes.†
PD 307	2 L 39 : 1940 Aluminium alloy bars to forgings.†
PD 308	2 L 37 : 1940 Aluminium alloy rivets.†
PD 309	5 L 3 : 1939 Aluminium alloy sheets and coils.†
PD 310	6 L 1 : 1939 Aluminium alloy bars, extruded sections and forgings (not greater than 3 in. diameter or minor sectional dimensions).†
PD 311	2 L 40 : 1940 Aluminium alloy bars, extruded sections and forgings (not greater than 3 in. diameter or minor sectional dimensions).†
PD 313	156 : 1943 Enamelled copper wire.
PD 314	3 F 45 : 1936 Rubber hose for use with hot water.
PD 316	3 T 26 : 1941 20 ton steel tubes (suitable for welding).†

† War emergency issue.

AMENDMENTS (continued)

Ref. No.	B.S.	
PD 317	249 : 1940	Brass bars (high speed screwing and turning)†
	and	
	250 : 1940	High tensile brass bars and sections (superseding PD 135).
PD 318	251 : 1940	Naval brass (Admiralty mixture).†
	and	
	252 : 1940	Naval brass (special mixture) (superseding PD 136).
PD 320	952 : 1941	Glass for glazing.
PD 323	1048 (1R) : 1942	Schedule of sizes and types of packages of pre-packed commodities.†
PD 324	945 : 1943	Rubber and insertion jointing.†
PD 325	674 : 1942	Rubber joint rings for water mains and sewers.†
PD 326	772 : 1942	Rubber joints for gas mains.†
PD 327	591 : 1935	Wrought iron and mild steel hooks of the C or Liverpool type.
PD 328	84 : 1940	Screw threads of Whitworth form.
PD 329	1095 : 1943	Metric screw threads.
PD 332	480 : 1942	Paper-insulated cables for electricity supply.
PD 333	608 : 1943	Varnished insulated cables for electricity supply.
PD 334	760 : 1943	Paper-insulated cables for use in mines.
PD 338	970 : 1942	Wrought steels.
PD 339	729 : 1937	Galvanised articles other than wire.
PD 340	443 : 1939	Testing of zinc coating on galvanised wires.
PD 341	7 : 1939	Rubber-insulated cables and flexible cords.
PD 344	459 : Part 1 : 1944	Panelled and glazed wood doors.
PD 345	236 : 1941	Steel wire ropes for colliery winding purposes.
PD 346	330 : 1941	Steel wire ropes for colliery haulage purposes.
PD 349	5 L 3 : 1939	Aluminium alloy sheets and coils.
PD 350	1142 : 1943	Fibre building board.
PD 353	504 : 1944	Drawn lead traps.
PD 354	1071 : 1943	A.C. arc welding plant and equipment.
PD 357	1218 : 1945	Sluice valves for waterworks purposes.
PD 359	796 : 1943	Rubber hose, with cotton braided reinforcement.
PD 360	924 : 1943	Rubber hose, with woven fabric reinforcement.
PD 361	1102 : 1943	Rubber suction and discharge hose with woven fabric and wire reinforcement.
PD 365	351 : 1944	Friction surface rubber transmission belting.
PD 366	431 : 1940	Manila ropes for general purposes.
PD 367	908 : 1940	Sisal ropes for general purposes.
PD 368	599 : 1939	Pump tests.
PD 369	1010 : 1944	Water taps, pillar, globe and stop
PD 372	700 : 1937	Graduated pipettes and straight pipettes.
PD 373	567 : 1945	Asbestos cement flue pipes and fittings for gas appliances.
PD 374	476 : 1932	Fire-resistance, incombustibility and non-inflammability of building materials and structures.
PD 375	921 : 1940	Rubber mats for electrical purposes.
PD 377	84 : 1940	Screw threads of Whitworth form.
PD 379	866 (3R) : 1940	Schedule of sizes and types of tins and cans.
PD 380	993 (1R) : 1941	Schedule of sizes and types of drums and sheet steel containers.
PD 381	1048 (1R) : 1942	Schedule of sizes and types of packages of pre-packed commodities.
PD 382	1049 (1R) : 1942	Schedule of sizes and types of metal collapsible tubes.

† War emergency issue.

AMENDMENTS (continued)

Ref. No.	B.S.
PD 383	1150 : 1944 Packaging index schedules.
PD 384	1163 : 1944 Schedule of permitted uses of container sealers.
PD 385	L45 : 1940 Aluminium alloy bars and forgings.
PD 386	988 : 1941 Mastic asphalt for roofing.
PD 387	863 : 1939 Steel straightedges.
PD 388	699 : 1944 Copper cylinders for domestic purposes.
PD 389	644 : 1945 : Part 1 : Wood windows and casement doors.
PD 392	1191 : 1944 Gypsum and anhydrite building plasters.
PD 393	1195 : 1944 Kitchen fitments and equipment.
PD 394	529 : 1945 Steel eyebolts with collars.
PD 396	560 : 1934 Engineering symbols and abbreviations.
PD 401	1127 : 1943 Circular screwing dies.
PD 403	1045 : 1942 Manganese steel gas cylinders.
PD 404	1226 : 1945 Draining boards.
PD 405	2 T 50 : 1942 50 ton steel tubes.
PD 406	2 T 45 : 1942 45 ton steel tubes.
PD 407	3 T 26 : 1941 20 ton steel tubes.
PD 408	3 T 2 : 1942 85 ton nickel chromium steel tubes.
PD 409	3 T 1 : 1942 35 ton steel tubes.
PD 410	972 : 1941 Synthetic resin bonded fabric sheet.
PD 411	330 : 1941 Round strand and flattened strand steel wire ropes for colliery haulage purposes.
PD 412	236 : 1941 Round strand and flattened strand steel wire ropes for colliery winding purposes.
PD 418	168 : 1936 Industrial electric motors and generators.
PD 419	1133 : 1943 Packaging code.
PD 424	445 : 1932 Copper commutator bars for electrical purposes.
PD 427	866 (3R) : 1940 Schedule of sizes of types of tins and cans.
PD 428	993 (1R) : 1941 Schedule of sizes and types of drums and sheet steel containers.
PD 429	1048 (1R) : 1942 Schedule of sizes and types of packages of pre-packed commodities.
PD 430	1150 : 1944 Packaging index schedule.

BRITISH STANDARDS WITHDRAWN

- B.S.
- 1 : 1920 Rolled steel sections for structural purposes.
 - 5 : 1905 First report on standard locomotives for Indian railways.
 - 17 : 1904 Interim report on electrical machinery.
 - 19 : 1905 Report on temperature experiments on field coils of electrical machines.
 - 20 : 1913 Report on B.S. screw threads.
 - 22 : 1905 Report on effect of temperature on insulating materials.
 - 25 : 1906 Report on errors in workmanship based on measurements carried out for the committee by the National Physical Laboratory.
 - 26 : 1907 Second report on standard locomotives for Indian railways.
 - 27 : 1906 Report on B.S. systems of limit gauges for running fits.
 - 28 : 1908 Report on B.S. nuts, bolt heads and spanners.
 - 30 : 1907 Steel castings for marine purposes.
 - 34 : 1913 Tables of B.S. Whitworth, B.S. fine and B.S. pipe threads.
 - 35 : 1907 Copper alloy bars for use in automatic machines.
 - 36 : 1907 Report on British Standards for electrical machinery.
 - 38 : 1913 Report on British Standard systems for limit gauges for screw threads.
 - 39 : 1908 Combined reports on B.S. screw threads.
 - 43 : 1909 Charcoal iron lapwelded boiler tubes.
 - 48 : 1909 Wrought iron of smithing quality for use in shipbuilding.
 - 49 : 1909 Ammeters and voltmeters.
 - 50 : 1910 Third report on standard locomotives for Indian railways.
 - 53 : 1913 Cold drawn weldless steel tubes for locomotive boilers.
 - 54 : 1911 Report on B.S. threads, nuts and bolt heads for use in automobile construction.
 - 55 : 1911 Report on hard drawn copper and bronze wire.
 - 56 : 1911 B.S. definition on yield point and elastic limit.
 - 58 : 1912 Cast iron spigot and socket soil pipes.
 - 59 : 1912 Cast iron spigot and socket waste and ventilating pipes for other than soil purposes.
 - 60 : 1913 (Parts 1 and 2) Report of experiments on tungsten filament glow lamps.
 - 69 : 1915 Report on B.S. tungsten filament glow lamps (vacuum type) for automobiles.
 - 70 : 1915 Report on B.S. pneumatic tyre rims for automobiles, motor cycles and cycles.
 - 71 : 1915 Report on B.S. solid tyre rim diameters for automobiles.
 - 72 : 1915 British Standardisation rules for electrical machinery (excluding motors for traction purposes).
 - 73 : 1915 Wall plugs and sockets (five ampere two-pin without earthing connection).
 - 75 : 1916 Wrought steels for automobiles.
 - 80 : 1917 Dimensions for magnetos for automobile purposes.
 - 82 : 1919 Starters for electric motors.
 - 85 : 1918 Steel for aircraft for Government purchases in the U.S.A.
 - 86 : 1919 Report on B.S. dimensions of magnetos for aircraft purposes.
 - 92 : 1919 Screw threads, British Standard Whitworth and their tolerances.
 - 100 : 1920 Body spaces and frame ends for chassis for private automobiles (dimensions for).
 - 104 : 1919 Light flat bottom railway rails and fishplates, sections of.
 - 106 : 1920 Electrically heated cooking range (two sizes).
 - 109 : 1923 Air-break knife switches and laminated brush switches for voltages not exceeding 660 volts.

BRITISH STANDARDS WITHDRAWN (continued)

B.S.

- 110 : 1923 Air-break circuit breakers for voltages not exceeding 660 volts.
- 111 : 1920 Wrought steels for aircraft, schedule of
- 112 : 1920 Cold worked steels for aircraft, schedule of
- 113 : 1920 Sheet steels for aircraft, schedule of
- 114 : 1920 Valve and valve spring steels for aircraft, schedule of
- 117 : 1923 Drum starters for electric motors.
- 118 : 1923 Drum controllers and resistances for use therewith for electric motors.
- 120 : 1925 Gas engines for electrical purposes.
- 121 : 1923 Motor and aviation spirit.
- 123 : 1923 Face plate controllers and resistances for use therewith for electric motors.
- 124 : 1923 Totally enclosed air-break switches for voltages not exceeding 660 volts.
- 126 : 1923 Flame proof air-break switches for voltages not exceeding 660 volts.
- 127 : 1923 Flame proof air-break circuit breakers for voltages not exceeding 660 volts.
- 129 : 1923 Contactor controllers and resistances for use therewith for electric motors.
- 130 : 1923 Totally enclosed air-break circuit breakers for voltages not exceeding 660 volts.
- 133 : 1921 Normal type vacuum tungsten filament electric lamps.
- 136 : 1920 Automatic telephone systems, terms and definitions for use in connection with.
- 141 : 1923 Switch starters (star-delta and series-parallel) for electric motors.
- 145 : 1921 Condenser tubes and screwed glands for condensers for marine purposes.
- 147 : 1923 Multiple switch starters for electric motors.
- 151 : 1922 Disc for determining the illuminating effect of automobile driving lamps.
- 152 : 1922 Copper conductors, insulated annealed for electric power and light.
- 154 : 1922 Malleable and soft cast iron pipe fittings for steam water and gas.
- 155 : 1923 Contactor starters for electric motors.
- 157 : 1923 Moulded flat top insulating bushes, dimensions for
- 165 : 1929 Hard drawn steel wire for concrete reinforcement.
- 166 : 1923 Radio communication, list of terms and definitions used in
- 167 : 1923 Auto-transformer starters (hand-operated pattern) for electric motors.
- 190 : 1924 B.S. Whitworth (BSW) bright hexagon bolts, set screws and nuts, split pins, washers and studs.
- 191 : 1924 British standard fine (BSF) bright hexagon bolts, set screws and nuts, split-pins, washers and studs.
- 193 : 1929 B.S. Whitworth (small hexagon) (B.S.W.S.) bright hexagon bolts, nuts and sets-screws, split-pins, washers and studs.
- 197 : 1927 Black oil pastes ('genuine' and 'reduced') for paints
- 198 : 1925 Electrolytic copper wire bars, cakes, slabs and billets.
- 199 : 1924 Electrolytic copper ingots and ingot bars.
- 200 : 1924 Tough copper cakes and billets for rollings.
- 201 : 1924 Fine copper cakes for rolling.
- 202 : 1924 Electrolytic cathode copper.
- 203 : 1924 'Best select' copper.
- 211 : 1925 Heavy-oil engines for electrical purposes, diesel type, air injection.
- 212 : 1925 Heavy-oil engines for electrical purposes, surface ignition type.

BRITISH STANDARDS WITHDRAWN (continued)

R.S.	
213 : 1925	Heavy-oil engines for electrical purposes, airless-injection, cold starting type.
235 : 1927	Gear wheels and pinions for electric tramways.
237 : 1929	Flattened strand steel wire ropes for colliery haulage purposes.
246 : 1927	Face-plate starters for electric motors.
247 : 1927	Face-plate rotor starters for electric motors.
253 : 1926	Table of cast iron flanges for pipes, valves and fittings for gas.
289 : 1927	Plug-in coils for radio-reception purposes.
298 : 1927	Red oxide of iron oil paste (class 1, natural or mixed oxides) for paints.
299 : 1927	Red oxide of iron oil paste (class 2, oxide of iron base) for paints
300 : 1927	Round strand steel wire ropes for colliery winding purposes.
304 : 1927	Brunswick or chrome green oil paste for paints.
315 : 1928	Red lead (non-setting).
317 : 1928	Three-pin wall plugs and sockets, hand shield and side entry pattern (two-pin and earth type) for domestic purposes.
342 : 1928	Two-coat asphalt (sand or sand and stone aggregate wearing surface).
343 : 1928	Two-coat asphalt (clinker aggregate).
344 : 1928	Single-coat asphalt (sand and stone aggregate).
345 : 1928	Single-coat asphalt (clinker aggregate).
346 : 1928	Mastic asphalt surfacing.
377 : 1930	Miners' handlamp bulbs.
393 : 1929	Tinted oil pastes for paints.
404 : 1930	Sampling and analysis of coal for export.
420 : 1931	Sampling and analysis of coal for inland purposes.
453 : 1932	Determination of the fusion temperature of coal ash.
496 : 1933	Sampling and analysis of coke.
502 : 1933	Sampling of large and run-of-mine coal.
516 : 1933	Distilled carbolic acids, 60's and 45's.
531 : 1934	Grading of birch plywood.
543 : 1934	B.S. colour schedule (<i>Issued by British Colour Council 28, Sackville St., W.1.</i>).
547 : 1934	Synthetic-resin bonded-paper sheets (grade 1) for electric purposes.
568 : 1934	Determination of phosphorus in coal and coke, method for the
614 : 1936	Graduated receivers for Dean and Stark apparatus.
681 : 1936	Carbon chromium steel.
686 : 1936	Analysis of coal ash and coke ash.
804 : 1938	Crucible swelling test for coal, method for the
918 : 1940	Aluminium bars containing small proportions of copper and zinc for general engineering purposes.†
1009 : 1942	Cheque sizes.†
1074 : 1942	Fireclay bases for use with open coal fires.†
1092 : 1943	Pitch mastic horizontal and vertical damp proof courses, alternative to mastic asphalt for damp proof courses, excluding tanking.†
1107 : 1943	Paper-insulated cables for electricity supply.†
1108 : 1943	Glazed tile fireplaces.
3000 : 1921	Condenser tubes and screwed glands for condensers for marine purposes (formerly 145 : 1921).
3001 : 1922	Table glass and crockery for use on ships.
3002 : 1922	Oil lamps for use on ships.
3003 : 1922	Locks for ships' joinery work.
3004 : 1922	Hinges for ships' joinery work.
3007 : 1923	End (or bending) shackles.

† War emergency issue.

BRITISH STANDARDS WITHDRAWN (continued)

B.S.

- 3008 : 1923 Hand screw (aft) steering gear.
- 3010 : 1928 Devil's claws.
- 3012 – 3020 (inclusive) *Unallocated.*
- 5000 *Unallocated.*
- 5001 : 1924 Valves for pneumatic tyres, dimensions for
- 5002 : 1924 Electric lighting and starter cables for automobiles.
- 5003 : 1922 Wide type concentric piston rings.
- 5005 : 1924 Wrought steels for automobiles (superseding B.S. 75 : 1916).
- 5008 : 1924 Valve steels and valve forgings for automobiles, schedule of
- 5010 : 1925 Steels for laminated springs for automobiles, schedule of
- 5011 : 1923 Keys, keyways and key bars for shafts up to 1½ in. in dia. for automobile purposes.
- 5012 : 1922 (Divisions I – V, IX – XVI and XVIII). Automobile, motor cycle and cycle parts, nomenclature for
- 5012 : 1923 (Division XVII). Automobile and coachwork, nomenclature for
- 5013 : 1924 Pneumatic tyre rims (superseding B.S. 70 : 1915).
- 5014 : 1926 Grease cups for automobiles, dimensions for
- 5016 : 1923 Lamp brackets for automobiles, dimensions for
- 5017 : 1923 (1) Cast iron couplings for propeller shafts.
(2) Bore, length and keyway of propeller bosses for small motor driven vessels, dimensions of
- 5018 : 1923 Fuel strainers for automobiles, dimensions for
- 5019 : 1923 Drain cocks for automobiles, dimensions for
- 5020 : 1924 Ball joints for automobiles.
- 5021 : 1928 Unions, nipples, and nuts (BSF and BSP) dimensions for
- 5022 : 1923 Malleable iron castings (European and black heart) for automobiles.
- 5023 : 1924 Narrow type concentric piston rings for automobiles, dimensions for
- 5024 : 1924 Iron castings for air-cooled and jacketed cylinders for automobiles.
- 5025 : 1924 Iron castings for sand cast pistons and valve guides for automobiles.
- 5026 : 1924 Iron castings for flywheels for automobiles.
- 5028 : 1924 Steel castings (Nos. 1 and 2 grade) for automobiles.
- 5029 : 1925 Carburettor flanges (2 bolt type), dimensions for
- 5030 : 1925 Calibration of carburettor jets for aircraft and automobile engines, method for the
- 5031–5034 : 1925 Dynamos, distributor mountings, starting motors and dynamotors for automobiles, dimensions for
- 5035 : 1925 Small couplings for internal combustion engines for automobiles, dimensions for
- 5036 : 1925 Eight stud wheel-centres for detachable wheels for commercial vehicles.
- 5037, 5038 : 1928 Centres for artillery wheels, centres for steel disc wheels, hub flanges for steel disc wheels, dimensions for
- 5039, 5040 : 1928 (1) Carbon brushes for magnetos, dynamos and starting motors.
(2) Flexible cord ('flex') and terminal tags for dynamos and starting motors for automobiles.

BRITISH AIRCRAFT STANDARDS WITHDRAWN

B.S.		
3 B	1	High tensile brass bars.
2 B	2	Bronze (gun metal) castings.
2 B	4	Copper sheets (annealed).
3 B	5	Brass sheets (hard rolled).
3 B	6	Naval brass bars.
3 B	12	Brass sheets (annealed).
3 B	13	Brass bars (high speed screwing and turning).
B	14	Brass castings (common).
2 B	15	Copper sheets (half hard).
2 B	16	Brass sheets (half hard).
B	19	65/35 annealed brass sheets.
B	20	Brass bars for hot stamping and forgings.
4 D	100	Air Ministry cellulose acetate dopes.
D	102	Nitro-cellulose dope.
2 D	103	Nitro dope coverings and identification colours.
D	105	Pigmented nitro-cellulose dope.
3 E	1	High tension ignition cables.
E	13	Sparking plug holes in engine cylinders.
E	16	Copper asbestos washers for sparking plugs.
2 F	29	Italian hemp ropes (plaited).
2 F	39	Flax tent duck.
F	40	Aircraft cotton fabric (scoured).
F	42	Skins for rigid airships.
F	43	Parachute silk.
F	44	Skin lining of gas bag fabric.
K	12	Iron castings for valve guides and air cooled engines.
2 L	32	Aluminium bars.
L	43	Aluminium alloy drop forgings for pistons and cylinder heads ('Y' alloy).
L	47	Aluminium coated aluminium alloy sheets and coils.
3 S	4	5 per cent nickel steel sheets (not suitable for welding).
S	83	High tensile 5 per cent nickel case hardening steel.
S	86	Nickel chromium steel sheets and strips (40-50 tons, 0.1 per cent proof stress).
S	87	Nickel chromium steel sheets and strips (55-65 tons, 0.1 per cent proof stress).
S	88	High tensile nickel chromium steel strips (65-75 tons, 0.1 per cent. proof stress).
T	5	50 ton carbon steel tubes.
3 T	7	Seamless copper tubes.
5 T	8	Annealed seamless brass tubes.
T	14	Tempered carbon steel axle tubes.
2 T	18	Hard drawn seamless brass tubes.
T	21	Annealed carbon steel tubes.
T	48	10 mm. diameter brass tubes for honeycomb type radiators.
V	34	Plywood for unstressed or lightly stressed parts of aircraft.
2 X	1	Pigmented oil varnish for covering doped fabric.
2 X	5	Paints for motor transport vehicles.
2 X	10	Air drying black enamel.
X	13	Protective covering for propellers.
2 X	15	Radiator paint.
X	16	Undercoating grey paint.
X	20	White spirit.
X	21	Turpentine.
X	22	Aluminium paint.
X	25	Paint for pipe lines.

BS/BOT STANDARDS WITHDRAWN

BS/BOT

- 1c : 1942 Women's dresses.
- 2 : 1942 Women's underwear.
- 2c : 1942 Women's underwear (*chart*).
- 3 : 1942 Women's blouses.
- 4 : 1942 Industrial overalls. (Add. Dec., 1942) Patterns for industrial overalls.
- 5 : 1942 Women's domestic overalls.
- 5c : 1942 Women's domestic overalls (*chart*).
- 6 : 1942 Women's boots and shoes (lower and medium grades)
- 7 : 1942 Girls' shoes.
- 8 : 1942 Boys' boots and shoes.
- 9 : 1942 Men's boots and shoes (lower and medium grades).
- 10 : 1942 Men's, women's and boys' heavy boots.
- 15 : 1942 Schedule of tinplate hollow-ware.
- 17 : 1942 Cutlery, including spoons and forks.
- 21 : 1942 Men's and women's shoes (higher grade).
- 22 : 1942 Infants' walking shoes.
- 26 : 1943 Amendments to BS/BOT 6, 7, 8, 9, 10, 21 and 22 for boots and shoes.

CODE OF PRACTICE WITHDRAWN

- CP 3 : 1944 Limitation of electric discharge lamp lighting.

WORK IN PROGRESS

ADHESIVES INDUSTRY COMMITTEE

Glues, testing of (extension and amendment of B.S. 647).

AGRICULTURAL MACHINERY AND IMPLEMENTS INDUSTRY COMMITTEE

Agricultural machinery, glossary of terms.

Beehives and beekeeping equipment.

Cultivator tines.

Mower details.

Tractor plough details.

Wheels of moving implements.

AIRCRAFT INDUSTRY COMMITTEE

The complete series of specifications for aircraft purposes is being reviewed from the following three aspects :

(a) To consider whether any of the standards should now be withdrawn.

(b) To make any necessary amendments to bring those that are retained up to date.

(c) To include in the series such new specifications (e.g., transfers from the D.T.D. series that may be considered desirable).

The following detailed work is already in hand :

Glossary of aeronautical terms (revision of B.S. 185).

Standards for aircraft instruments.

Flexible steel wire ropes (revision of 5.W.2).

Preformed flexible steel wire ropes.

ASBESTOS CEMENT PRODUCTS INDUSTRY COMMITTEE

Asbestos cement cisterns.

Asbestos cement pressure pipes (revision of B.S. 486).

BITUMINOUS PRODUCTS INDUSTRY COMMITTEE

Bituminous roofing felts (revision of B.S. 747).

Waterproof papers for underlays and other building purposes.

Bitumen adhesives for floors and other purposes.

Asphalt tiles.

Pitch mastic, coloured and wood filled, flooring.

Mastic asphalt, coloured and wood filled, flooring.

BUILDING GENERAL COMMITTEE.

Unit weights of building materials (revision of B.S. 648).

Sequence of trade headings (revision of B.S. 685).

Constructional requirements for kitchen cupboards.

Meter cupboards for gas.

Meter cupboards for electricity.

Fire resisting shutters.

Damp-proof courses (revision of B.S. 743).

Clothes line posts (concrete, steel and timber).

Fencing (covering all types).

Arrangement of specifications for steel and reinforced concrete.

Cork slab flooring.

WORK IN PROGRESS (continued)

CEMENT, LIME AND GYPSUM INDUSTRY COMMITTEE

Portland cement (revision of B.S. 12).

Portland blast furnace cement (revision of B.S. 146).

High aluminium cement (revision of B.S. 915).

Low heat cement.

Standard methods for testing concrete.

Concrete kerbs, channels and quadrants (revision of B.S. 340).

Concrete flags (revision of B.S. 368).

Aerated concrete blocks.

Gypsum plaster blocks.

CHEMICAL INDUSTRY COMMITTEE

Burettes, and bulb burettes (extension of B.S. 846, Part 3).

Burettes, micro.

Glass int. ground, joints (revision of B.S. 572).

Haemoglobinometers, Sakli type.

Micro-nitrometers.

Pipettes, one mark.

Pipettes, washout.

Pipettes, syringe.

Sugar, solu. dens. comp. tables.

Thermometers, Anschutz type.

Trains, C. and H. combustion.

CHEMICAL ENGINEERING INDUSTRY COMMITTEE

Adaptors for gas cylinder valves.

Coatings, anodic, tests for

Coatings, phosphate.

Coatings, silver.

Colours, standard, of metallic finishes.

Cylinders, high carbon steel, for liquifiable gases.

Cylinders, manganese steel, for liquifiable gases.

Cylinders, medical gas, and apparatus.

Dustbins, mild steel (revision of B.S. 792).

Filling ratios.

Fire extinguishers, welding of

Fire extinguishers. Gas-water pressure type.

Oil burning equipment, fully automatic, for central heating and hot water supply (revision of B.S. 799).

Pressure vessels, chemical engineering, code.

Safety glass, for land transport (revision of B.S. 857).

Screening cloths.

Sodium stannate.

Stoneware pipes.

Vitreous enamels, quality tests.

Vitreous enamels, colours.

CINEMATOGRAPH INDUSTRY COMMITTEE

Seats for cinemas.

Screen brightness.

Reels and spools for 2,000 ft. lengths of film.

Projector and sound equipment for 16 mm. film.

WORK IN PROGRESS (continued)

CINEMATOGRAPH INDUSTRY COMMITTEE (continued)

Projector and sound equipment for 35 mm. film.

Transit cases for 2,000 ft. reels.

Lens mounts.

Sound heads.

Incandescent lamps.

Glossary of terms used in the cinematograph industry.

CLAY PRODUCTS INDUSTRY COMMITTEE

Earthenware drain pipes (revision of B.S. 65 and 540).

Dimensions of building bricks (revision of B.S. 657).

General building bricks.

Single lap clay roofing tiles.

Hollow clay blocks for walls.

Cellular and perforated bricks.

COLLIERY REQUISITES INDUSTRY COMMITTEE

Cable gland and sealing boxes (revision of B.S. 542).

Flameproof cable couplers (revision of B.S. 912).

Flameproof lighting fittings (revision of B.S. 889).

DAIRYING INDUSTRY COMMITTEE

Cheese cloth patterns.

Chemical analysis of casein.

Dairy products, wrapping of, (tin foil).

Dairy products, wrapping of, (vegetable parchment).

Farm sterilising boilers and milk sterilising plant.

Milk bottles.

Milk churns.

Milk, freezing point of, (referred W.S.P.A.).

Milk strainers.

Rennet.

DISINFECTANTS INDUSTRY COMMITTEE

Disinfectant powders (revision of B.S. 1013).

DISTRIBUTIVE INDUSTRY STANDARDS COMMITTEE

Fillings for bedding and upholstery.

ELECTRICAL INDUSTRY COMMITTEE

Battery vehicles :

Battery lugs.

Charging plugs (revision of B.S. 74).

Motors.

Bushing insulators, high-voltage (revision of B.S. 223).

Cables, conductors and wires :

Rubber and P.V.C. cables (revision of B.S. 7).

Paper cables (revision of B.S. 480).

Textile coverings for wires.

Enamelled copper wires (revision of B.S. 156).

Hard-drawn copper conductors (revision of B.S. 125).

WORK IN PROGRESS (continued)

ELECTRICAL INDUSTRY COMMITTEE (continued)

Capacitors for intrinsically safe apparatus :

Cells :

Air-depolarised type.

Leclanché type (revision of B.S. 379).

Carbon rods for cells.

Circuit breakers (revision of B.S. 116).

Distribution boards (revision of B.S. 214).

Earthing clamps (revision of B.S. 951).

Fans (revision of B.S. 707 and 848).

Flameproof electrical equipment :

Cable glands and sealing boxes (revision of B.S. 542).

Cable couplers (revision of B.S. 912).

Enclosures for apparatus (revision of B.S. 229).

Plugs and sockets for use in mines (revision of B.S. 279).

Lighting fittings (revision of B.S. 889).

Fuses :

Revision of B.S. 88.

Cartridge fuses (revision of B.S. 646).

Railway signalling fuses (revision of B.S. 714).

Heating and cooking equipment :

Elements for electric fires.

Boiling plates (revision of B.S. 744).

Cooking tests for domestic ovens.

Cooker control units (revision of B.S. 438).

Immersion heaters for domestic hot-water supply.

Thermostats for hot-water supply.

Wash-boilers.

Water heaters (revision of B.S. 843).

Insulating materials :

Moulding materials for general purposes (revision of B.S. 488).

Moulding materials for switch and control gear.

Moulding materials for use at high temperatures.

Moulding materials for use at radio frequencies.

Ceramic materials.

Synthetic resin bonded-paper boards (revision of B.S. 1137).

Synthetic resin bonded-paper tubes.

Cotton tapes and webbing (revision of B.S. 633).

Ebonite (revision of B.S. 234).

Asbestos tape for electrical purposes.

Tests on finished mouldings.

Insulating oils (revision of B.S. 148).

Intrinsically safe electrical equipment :

Bells.

Telephones.

Relays.

Transformers

Lamp-caps and holders :

Bayonet type (revision of B.S. 52).

Screw type (revision of B.S. 98).

Festoon type.

Caps and holders for fluorescent lamps.

Mercury arc rectifier equipment.

Mercury :

Revision of B.S. 37.

Pre-payment meters.

WORK IN PROGRESS (continued)

ELECTRICAL INDUSTRY COMMITTEE (continued)

Overhead lines :

- 11kV lines for electrical distribution.
- Dimension of high-voltage insulators.
- Copper conductors (revision of B.S. 125).

Plugs and sockets :

- Domestic.
- Industrial 3-phase.
- Mining (revision of B.S. 279).
- Charging plugs for battery vehicles (revision of B.S. 74)

Radio interference suppression :

- Method of measurement of interference (revision of B.S. 727).
- Limits of interference (revision of B.S. 800).
- Components for suppression devices (revision of B.S. 613).
- Code of practice for suppression of interference caused by electro-medical and industrial high-frequency equipment.
- Code of practice for suppression of interference caused by ignition systems.
- Code of practice for the suppression of interference caused by marine installations.

Radio-diagnostic equipment.

Radio-therapy equipment.

Railway signalling apparatus :

- Lamps (revision of B.S. 469).
- Terminals (revision of B.S. 442).
- Fuses (revision of B.S. 714).
- Point-operating machines (revision of B.S. 581).
- Relays.

Rotating electrical machinery (revision of B.S. 168, 169, 225, 226).

Symbols, graphic (revision of B.S. 108).

Telegraph and telephone line equipment (revision of B.S. 16).

Traction motors (revision of B.S. 173).

Transformers :

- For protective purposes.
- For intrinsically safe signalling circuits.

Tumbler switches.

Valves, electronic, bases and sockets for (revision of B.S. 438).

Voltages for extra-high-voltage systems.

FINE CHEMICALS INDUSTRY COMMITTEE

Gum tragacanth.

Precipitated chalk, bulk density of

GAS INDUSTRY COMMITTEE

Boilers, test code for gas and waste heat fire.

Carbonisation, test code.

Water gas plant.

Gas appliances, domestic (Part 1 and Part 2).

Gas lighting units for single family dwellings.

Jointing materials.

Tubing, solid drawn brass and copper, for gas appliances.

HARDWARE AND SANITARY FITTING INDUSTRY COMMITTEE

Pressed steel rainwater gutter tubes and fittings (revision of B.S. 1091).

Sundry fixings for building purposes.

Bolts and nuts for sundry fixings.

Fixings for roof tiles, etc.

Fixing for pipes, etc.

WORK IN PROGRESS (continued)

HARDWARE AND SANITARY FITTING INDUSTRY COMMITTEE (continued)

Mixing valves (manually operated) for ablutionary and domestic purposes.
Asbestos cement storage cisterns.
Indirect cylinders (galvanised mild steel type).
Indirect cylinders (copper type).
Ball valves.
Cast iron drain pipes (revision of B.S. 437).
Schedule of cast iron drain fittings (revision of B.S. 1130).
Floor springs for doors.
Sash cords (revision of B.S. 606).
Axle pulleys for sash windows.
W.C. suites (combination of B.S. 1125, 1213 and 1254).
Syphonic W.C's.
Flushing valves.
Metal window sub-frames.
Windows for interior glazing.
Windows for inward opening.
Windows for schools and offices.
Windows for industrial buildings.
Metal internal doors.

HEAVY CHEMICALS INDUSTRY COMMITTEE

Calcium, carbide of (revision of B.S. 642).

ILLUMINATION INDUSTRY COMMITTEE

Aerodrome lighting.
Automobile lighting.
Co-ordination of colours for aerodrome lighting, lighthouse purposes, railway signals and traffic control signals.
Electric filament lamps for lighthouse and cognate beam projection apparatus.
Electric signs (revision of B.S. 559).
Classification of light distributions (revision of B.S. 398).
Projection lamps.
Reading lamps (including piano lighting and floor standards).
Street lighting.
Vitreous enamel reflectors (revision of B.S. 232).
Well-glass fittings for general illumination.

IRON AND STEEL INDUSTRY COMMITTEE

Heat treatment definitions.
Comprehensive schedule of specifications are being prepared for (wrought) carbon and alloy steel in the following forms :
 Bars.
 Bars for machining, forgings and drop forgings.
 Sheet and strip.
 Tube.
 Wire.
Steel castings for use at high temperatures.
Dimensions of steel slab bases.
Metal lathing.
Bending dimensions for steel reinforcement.
Corrugated steel sheets (revision of B.S. 798).
Cast iron pipes for water, gas and sewage, cast on the incline.

WORK IN PROGRESS (continued)

IRON AND STEEL INDUSTRY COMMITTEE (continued)

Cast iron pipes for hydraulic purposes.

Methods of analysis of iron and steel.

Identification marking of steel.

Silver steel.

Impact testing of cast iron.

Malleable cast iron (revision of B.S. 309 and 310)

Transformer stampings.

Method of protection for iron and steel.

Steel pipes for water gas and sewage (revision of B.S. 554).

LEATHER INDUSTRY COMMITTEE

Leather, methods of testing.

MECHANICAL INDUSTRY COMMITTEE

Automatic sprinklers, fittings for

Bearings, ball and parallel roller (revision of B.S. 292).

Bearings, oil retaining (oil seals).

Belting, leather.

Bend test on thin metals.

Boiler water, methods and analysis for water used in steam generation.

Boiler scale, method of analysis of

Boiler water, methods of sampling for

Boiler water treatment, methods of, for marine purposes.

Boilers, cast iron, for central heating and hot water supply (revision of B.S. 779).

Boilers, electrode.

Boilers, welded steel for steam central heating (revision of B.S. 854).

Boilers, welded steel for hot water central heating and hot water supply (revision of B.S. 855).

Boilers, riveted steel for hot water central heating and hot water supply (revision of B.S. 780).

Bolt heads, black cap and countersunk, etc. (revision of B.S. 325).

Bolts and nuts, black (revision of B.S. 916).

Cable, stud link anchor (revision of B.S. 3006).

Calorifiers (revision of B.S. 853).

Carburettor, jets, calibration of (revision and extension of B.S. 720).

Chain, electrically welded mild steel (pitched and short link) (revision of B.S. 590).

Chain, short link welded crane (revision of B.S. 394).

Chains, steel roller and chain wheels (revision of B.S. 228).

Circulators, power.

Cocks, gas main.

Collets.

Compressor tests.

Condensing units for refrigerators.

Copper tube screw threads.

Copper alloy three piece unions (revision of B.S. 66).

Copper alloy pipe fittings (revision of B.S. 99).

Copper tubes, capillary joints for (extension of B.S. 864).

Coupling guards and associated shafting.

Cranes, electric overhead travelling (revision of B.S. 466).

Cutting tools, terms and definitions for

Dies, diamond, non-reinforced, for wire drawing (revision of B.S. 1168).

Fire hydrants, underground, etc. (revision of B.S. 750).

Foundry Patterns, marking and colouring of (revision of B.S. 467).

WORK IN PROGRESS (continued)

MECHANICAL INDUSTRY COMMITTEE (continued)

Fuel injectors.

Gas and water flanges for gas up to 30 lb./sq. in. and water up to 175 lb. sq. in.
(revision of B.S. 10 : Pt. 1).

Gear hobbing machines.

Gear hobbing tools.

Gears, machine cutting, B. bevel (revision of B.S. 545).

Gears, traction.

Grinding wheels, dimensions of, and attachment (revision of B.S. 620).

Grinding wheels, segments of (revision of B.S. 671).

Hacksaw blades.

Jewels for clocks and watches.

Keys and keyways (revision of B.S. 46 : Pt. 2).

Lathe centres (revision of B.S. 426).

Lifting gear, ship's cargo (revision of B.S. 408).

Lifts, electric, and hoists.

Lift motors, A.C. & D.C.

Lubricating nipples.

Magnetos for internal combustion engines (revision of B.S. 5027), combined
lighting and ignition units.

Milling cutters and reamers (revision of B.S. 122).

Patterns, sheet metal development.

Picks and mattocks.

Pipe fittings, malleable cast iron and cast copper alloy (revision of B.S. 143).

Pipes and piping, non-ferrous.

Plummer blocks.

Pneumatic tools.

Receivers, steam, and separators.

Revolution indicators.

Ropes, lift (revision of B.S. 329).

Saws, circular metal, cold working (revision of B.S. 387).

Screws, socket set.

Ships side scuttles and frames.

Signal posts, semaphore signals, etc.

Slings, wire rope and sling legs.

Sluice valves for water works (revision of B.S. 1218).

Socket wrenches.

Spanners, B.S.W. and B.S.F. (revision of B.S. 192).

Spanners, C. and hook.

Spanners, tubular.

Spanners, forged box.

Spanners, B.A. open ended.

Sparking plugs for automobile engineering (revision of B.S. 45 and 2 E 9).

Splines and serrations (extension of A.20).

Spring washers.

Steam flanges, for steam up to 450 lb./sq. in. (revision of B.S. 10 : Pt. 2).

450 to 600 lb./sq. in. (revision of B.S. 10 : Pt. 3).

600 to 900 lb./sq. in. (revision of B.S. 10 : Pt. 4).

900 to 1400 lb./sq. in. (revision of B.S. 10 : Pt. 5).

Surface finish.

Tanks, cast iron sectional.

Tanks, steel sectional.

Tapers, dimensions of (and gauges).

Taps, screwing (revision of B.S. 949).

Tensile testing machines.

Tools, shapes of butt welded

WORK IN PROGRESS (continued)

MECHANICAL INDUSTRY COMMITTEE (continued)

Tubes and tubulars, wrought iron (revision of B.S. 788).

Tubes and tubulars, steel (revision of B.S. 789).

Twist and straight-flute drills (revision of B.S. 328).

Vee rope drives and pulley groove angles.

NON-FERROUS METALS INDUSTRY COMMITTEE

Aluminium and Aluminium Alloys.

Chemical analysis of aluminium and aluminium alloys.

Fatigue testing of light alloys.

Standard aluminium alloy sections (revision of B.S. 1161).

A comprehensive schedule of specifications for aluminium and aluminium alloys in the following :

Ingots and castings.

Bars, rods and sections.

Sheet and strip.

Tubes.

Forgings.

Rivet wire.

Welding wire.

Copper and Copper Alloys.

Methods of sampling and testing (analytical) copper.

Methods of sampling and testing (analytical copper alloys).

Ingots and castings : A comprehensive schedule incorporating all existing specifications for ingots and castings is being prepared.

It will also include the following two new alloys :

83/7/9/1 leaded gun metal,

16 ton grade phosphor bronze.

Recommended code of procedure for testing copper alloy castings.

Bars, rods and sections.

Aluminium bronze.

Copper silicon.

26 ton grade phosphor bronze.

22 ton grade yellow metal.

Sheet and strip.

Copper silicon

Aluminium bronze.

22 ton grade yellow metal.

Condenser plates.

Tubes.

Aluminium bronze condenser tubes.

Aluminium bronze tubes for general engineering purposes.

Cupro-nickel condenser tubes.

Copper silicon tubes.

Copper tubes for domestic and similar work (revision of B.S. 611).

Copper tubes for use underground.

Copper tubes for refrigerators.

Copper and copper alloy tubes for petroleum.

Copper tubes for steam installations.

Copper tubes for general engineering purposes.

Brass wire.

WORK IN PROGRESS (continued)

NON-FERROUS METALS INDUSTRY COMMITTEE (continued)

Lead.

Lead pipes (revision of B.S. 602).

Copper for electrical purposes.

Plain dead soft copper strip bars and rods (revision of B.S. 444).

Copper commutator bars (revision of B.S. 445).

Medium hard copper strip bars and rods (revision of B.S. 518).

Hard copper sheet and strip (revision of B.S. 1110).

Magnesium and magnesium alloys.

Bars, rods and sections.

Sheet and strip.

Tubes.

Forgings.

Protective treatment of magnesium alloys.

Zinc.

Fine zinc, grades A and B (revision of B.S. 220).

Special zinc (revision of B.S. 221).

Foundry zinc (revision of B.S. 222).

Zinc for roofing including roof fittings (revision of B.S. 849).

**OILS, FATS AND GREASES (OTHER THAN PETROLEUM AND TAR)
AND SOAPS INDUSTRY COMMITTEE**

Tallow and bone greases.

PAINTS AND VARNISH INDUSTRY COMMITTEE

Ready mixed paints, oil gloss (revision of B.S. 929).

Water bound paints and distempers (revision of B.S. 1053).

Fire retardent paints.

Hard gloss paints.

Knotting.

Putty (revision of B.S. 544).

Flat oil paints.

Colours for paints (revision of B.S. 381).

Review of war emergency amendments in all pigment specifications.

PETROLEUM INDUSTRY COMMITTEE

Fuel oils (revision of B.S. 209 and 742).

Lubricating oils (revision of B.S. 210).

PETROLEUM EQUIPMENT INDUSTRY COMMITTEE

Ferrous tubes.

Non-ferrous tubes.

Pipe flanges and fittings.

Pipes and couplings.

Rubber hoses.

Metallic hoses.

Tubular heat exchangers.

Valves and cocks.

WORK IN PROGRESS (continued)

PHOTOGRAPHIC INDUSTRY COMMITTEE

Film strip projectors.
Microfilms
Microfilm readers
Photographic exposure meters.
Photographic masks for contact printing.
Photographic plates, sizes of
Record card for mass miniature radiography.
Sensitivity of photographic paper.

PLASTICS INDUSTRY COMMITTEE

Aminoplastic moulding materials.
Cellulose acetate moulding powder.
Moulded ash-trays.
Moulded picnic tableware.
Synthetic-resin bonded-paper sheet for building purposes.

**PRINTING, STATIONERY AND ALLIED TRADES INDUSTRY
COMMITTEE**

Account books, bound.
Commercial forms and stationery.
Files and folders.
Printers cards and blanks.
Stationery, personal.
Tags and labels.

ROAD ENGINEERING INDUSTRY COMMITTEE

Sizes of broken stone (revision of B.S. 63).
Methods of testing aggregates (revision of B.S. 812).
Sampling and testing of bituminous mixtures (revision of B.S. 598).
Compressed rock asphalt (revision of B.S. 348).
Rolled asphalt, hot process (revision of B.S. 594).
Mastic asphalt surfacing, hot process (revision of B.S. 596).
Road traffic signs (revision of B.S. 873).
Glossary of highway terms (revision of B.S. 893).
Concrete road slabs (revision of B.S. 1020).
Bituminous compounds for road joints.
Fine graded cold bituminous asphalt.
Fine graded tar macadam.

RUBBER INDUSTRY COMMITTEE

Rubber flooring.
Rubber, anti-static and conductive.
Rubber, vulcanised, for Government department purposes (revision of B.S. 1154).
Rubber, tests for latex, raw and unvulcanized compressed rubber.
Teat cup rubbers for milking machines.
Tubing, plain rubber for Government department purposes (revision of B.S. 1155)

SOLID FUEL INDUSTRY COMMITTEE

Boilers, brickwork settings for
Chimneys and flues (industrial).
Cooking ranges.
Cooking tests.
Flue gases, sampling.

WORK IN PROGRESS (continued)

SOLID FUEL INDUSTRY COMMITTEE (continued)

Flue gases, analysis

Flue gases, indicating and/or recording instruments

Flue pipes, cast iron (revision of B.S. 41).

Glass furnaces, test code.

Insulating material, ready to fit, for small houses.

Insulating materials, preformed, for central heating and hot water supply.

Heating stoves.

Log sheets for small steam raising plant.

Plastic comp. flex and dry. thermal insulating material for central heating and hot water supply.

Pottery kilns, test code.

Solid fuel burning appliances, glossary of

Solid fuel cookers and combination grates.

STONE AND STONE PRODUCTS INDUSTRY COMMITTEE

Crushed brick aggregate.

Stone media for filter beds.

Classification of building stone.

Metal fixings for masonry, etc.

TAR PRODUCTS INDUSTRY COMMITTEE.

Creosote fuel oil for furnaces (revision of B.S. 503, Coal tar fuel 200s).

Cresylic acid of high ortho content (revision of B.S. 517).

Cresylic acid 50/55 metacresol (revision of B.S. 521).

Cresylic acid, refined (revision of B.S. 524).

Phenol (revision of B.S. 523).

TIMBER INDUSTRY COMMITTEE

Definitions applicable to timber (revision of B.S. 565).

Nomenclature of timbers (revision of B.S. 589).

Method of testing moisture in timber.

Plywood.

Timber connectors.

Sash windows.

Flush doors with hard board face.

Handing of doors, windows and stairs.

Fire check flush doors, 30 min. and 60 min. grade.

Wood battens.

WELDING INDUSTRY COMMITTEE

Welding terms, definitions and symbols (revision of B.S. 499).

Welding of steel structures of mild steel (revision of B.S. 538).

X-ray examination of welds for the testing of welders.

Hose connections for gas welding equipment.

Bronze welding.

Brazing.

Aluminium electrodes.

Spot welding of mild steel (revision of B.S. 1140).

Steel sections for use in welding construction.

WORK IN PROGRESS (continued)

WOOD PRESERVATIVES INDUSTRY COMMITTEE

Wood preservatives, tar oil types, other than creosote.

Wood preservatives, other than tar types.

SPECIAL COMMITTEES

Card index cabinets.

Catalogues for the building industry, sizes of

Costing.

Documentation :

Alphabetical arrangements.

Bibliographical references.

Universal decimal classification.

Filing cabinets.

Kitchen measuring cups and spoons.

Mattresses for bedding.

Nomenclature and symbols for industrial statistics.

Office desks and tables.

Office mechanisation.

Quality control.

Safes.

Safety belts.

Sampling technique.

Seating for offices and works.

Shelves and bins for offices and works.

Strong room doors.

Syringes, metal and glass : all glass syringes, hypodermic needles.

Welders' glasses (revision of B.S. 679).

Women's clothing, sizes of :

Blouses.

Dresses.

Lingerie.

CODES OF PRACTICE

Apart from the published Codes (*see* page 252) a list of draft Codes circulated for comment can be obtained on application to the Institution.

NUMERICAL LIST OF BRITISH STANDARDS

NOTES. (i) This list does not include British Standards which have been cancelled or withdrawn ; these are listed on pages 65 to 70.

(ii) Standards marked ' under revision ' are not available.

(iii) AS NZ SA signify that the standard has been endorsed by the Dominion Standards Authority for use as an Australian, New Zealand or South African standard respectively.

(iv) In the case of standards marked ' temporarily out of print ' a limited number of copies are available for loan purposes and a copy may be borrowed on request.

B.S.

2 : 1944 Tramway rails and fishplates.
29pp. 9 diagrams. 5s.

The specification deals with quality of steel, mechanical tests, dimensions and weights, size and position of holes with permissible deviation, for the rails and their appropriate fishplates. There are eight sizes of tramway rail and one dock rail. Full size dimensioned sections are given for each size of rail.

3 : 1903 Influence of gauge length and section of test bar on the percentage of elongation.
By Professor W. C. Unwin, F.R.S.
23pp. 2s. Temporarily out of print.

This report gives an historical account of the development of the tests, together with general results of tests on steel ship plates and boiler plates of from $\frac{1}{4}$ in. to $1\frac{1}{4}$ in. thickness. Proposals for standard form of test bar are outlined.

4 : 1932 Channels and beams for structural purposes, dimensions and properties of
21pp. 2s. Partly superseding B.S. 6 : 1924.

Tables of dimensions and properties (centre of gravity, moments of inertia, radii of gyration and moduli of section, etc.) of standard channels and beams are set out for sizes from $3 \times 1\frac{1}{2}$ in. up to $24 \times 7\frac{1}{2}$ in.

4A : 1934 Equal angles, unequal angles and T bars for structural purposes, dimensions and properties of
23pp. 2s. Partly superseding B.S. 6. SA

Tables of dimensions and properties (moments of inertia, radii of gyration, moduli of section, etc.) for standard angles (equal and unequal) and T-bars are set out.

6 : 1924 Bulb angles and bulb plates for structural purposes, dimensions and properties of
17pp. 1s. See B.S. 4 and 4A.

Tables of dimensions and properties of standard sections are given, together with approximate formulæ for the calculation of the properties (areas, moments of inertia, and section modulus).

NOTE. Approximate formulæ for all sections are included in the extract from B.S. 6 : 1924.

7 : 1939 Rubber-insulated and P.V.C. cables and flexible cords for electric power and lighting for working voltages up to and including 11 kV. AS* NZ
51pp. 3s. 6d. Amendments PD 118, June 1943 24 pp. 2s. (incorporating and superseding previous amendments) ; PD 175, October 1943 ; PD 278, August 1944 ; PD 341, March 1945. See B.S. 480.

This specification gives details for the construction of rubber and polyvinyl chloride (P.V.C.) cables for voltages from 250 volts to 11 000 volts, together with particulars of the voltage tests to be applied. Tables of dimensions of conductor and of thicknesses of insulation and sheaths are included. Colour schemes are given for single and multi-core cables.

* With local amendments.

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- 8 : 1939 **Steel tubular traction poles (circular cross section).** NZ
15pp. 2s.
Poles of four different weights are dealt with, low-tensile types being either lap welded or weldless and high-tensile types being weldless. Constructional requirements are specified and tables of standard lengths, diameters, and wall thicknesses are added. Drop, bending and other tests are prescribed and tables for weights and equivalent load are given.
- 9 : 1935 **Bull head railway rails.** SA
43pp. 5s. Amendment CF 7618, March 1941.
The specification lays down quality of material, chemical composition and mechanical properties and includes requirements for the condition of the finished rails, straightness, location of holes, lengths, etc. Dimensions, shapes and standard weights are given for the range of rail sizes covered, viz., 60 lb. per yard up to 100 lb. per yard with full size illustrations.
- 10 : — **Tables of pipe flanges (for land use).**
These tables are issued in five parts as follows :
- 10 : Part 1 : 1928 **For working gas pressures up to 30 lb./sq. in. and water pressures to 175 lb./sq. in.**
15pp. 2s. AS NZ SA
- 10 : Part 2 : 1926 **For working steam pressures up to 450 lb./sq. in.**
16pp. 2s. Amendment June 1927. AS NZ SA
- 10 : Part 3 : 1929 **For working steam pressures above 450 lb./sq. in. and up to 600 lb./sq. in.**
6pp. 2s. Amendment CC 3901, April 1931. AS NZ SA
- 10 : Part 4 : 1931 **For working steam pressures above 600 lb./sq. in. and up to 900 lb./sq. in. and temperatures to 800°F. (427°C.).**
11pp. 2s. SA
- 10 : Part 5 : 1932 **For working steam pressures above 900 lb./sq. in. and up to 1400 lb./sq. in. and temperatures up to 800°F. (427°C.).**
13pp. 2s. SA
- In each case tables of dimensions for various nominal pipe sizes are given with metrical equivalents and illustrative drawings, together with bolt circle and bolt sizes. Flanges may be of cast iron, bronze, cast steel, or forged iron or steel, where appropriate. For Parts 4 and 5, tensile and notched bar tests are required and the test specimens to be used are illustrated.
- 11 : 1936 **Flat bottom railway rails.** SA
77pp. 5s. Amendment CF 7619, March 1941.
The specification lays down quality of material, chemical composition and mechanical properties and includes requirements for the condition of the finished rails, straightness, matching, lengths, etc. Dimensions, shapes and areas of sections, and standard weights are given for the range of rail sizes covered, viz., 25 lb. per yard up to 120 lb. per yard with full size illustrations.
- 12 : 1940 **Ordinary Portland and rapid-hardening Portland cements.** NZ SA
26pp. 2s. Amendment CF 9915, March 1942.
This specification covers composition and manufacture of cement, sampling procedures, and tests of the following properties : fineness, chemical composition, strength, setting time, and soundness. An Appendix describes a vibration machine for compacting mortar cubes for the compressive strength test.
NOTE. Also available in a Basic English edition.
- 13 : 1942 **Structural steel for shipbuilding.**
12pp. 2s. French, Italian and Spanish translations, 5s. each.
Process of manufacture is specified, with maximum limits of sulphur and phosphorus contents. Tests to be carried out on plates, sections and bars are tensile and bend

B.S.

tests, as described ; a dump test is required for rivet bars. Tests on manufactured rivets are also described. The specification also covers marking and the provision of a certificate, and inspection procedures.

14 : 1942 Structural steel for the pressure parts of marine boilers.

14pp. 2s.

Process of manufacture is specified, with maximum limits of sulphur and phosphorus contents. A schedule of percentage rolling weight tolerances for boiler plates is given. Tests to be carried out on plates, sections and bars are tensile and bend tests, as described ; a dump test is required for rivet bars. Tests on manufactured rivets are specified. The specification also covers marking and the provision of certificates, and inspection procedures.

15 : 1936 Structural steel for bridges, etc., and general building construction. NZ² SA
19pp. 2s. Amendments CE 6853, February 1938 ; CF 7376, February 1941.

Process of manufacture is specified, with maximum limits of sulphur and phosphorus contents. The limits of copper content for copper bearing steel are also indicated. Tests to be carried out on plates, sections, and round and square bars are tensile and bend tests, as described. Tests of manufactured rivets are also described. Permissible margins on weights and dimensions are indicated ; also, marking and the provision of certificates, and inspection procedures.

16 : 1937 Telegraph material (insulators, pole fittings, etc.).

65pp. 3s. 6d. Amendments CE 6063, December 1937 ; CF 9689, March 1942. See B.S. 174/184. Temporarily out of print.

Dimensions and mechanical tests are prescribed for galvanised bolts and nuts, arm-bolts, stay swivels, stay rods and tighteners, tie bolts, arm combiners, brackets, insulators and spindles. The materials to be used are stated, and electrical tests for insulators are prescribed.

18 : 1938 Tensile testing of metals.

NZ

16pp. 2s. Amendment CF 6107, June 1940.

Definitions of principal terms are given : limit of proportionality ; yield, proof and ultimate tensile stress ; Young's modulus. Forms of test pieces for sheets, strips, sections, etc., and for machined and unmachined rods and bars are described and special test pieces for cast iron and malleable iron castings (under revision) as well as for wire below $\frac{1}{4}$ in. dia. and tubes are specified. Methods of procedure are described.

21 : 1938 Pipe threads. Part 1 : Basic sizes and tolerances.

AS NZ SA

13pp. 2s.

The forms of parallel and taper B.S. pipe threads (based on the Whitworth form of thread) are specified, together with definitions of terms relating to taper threads. Tables give the basic sizes and tolerances of threads of nominal sizes from $\frac{1}{8}$ in. to 12 in. inclusive.

23 : 1933 Trolley and contact wire and trolley wheel groove for electric traction.

9pp. 2s. Amendments CD 7525, August 1935 ; PD 128, June 1943.

This specification covers hard-drawn copper, cadmium-copper and bronze wires. Size of wire, manufacture, and mechanical and electrical characteristics are specified. Dimensions and configuration of grooved trolley wire and dimensions of section of trolley wheel groove are set out.

24 : ——— Railway rolling stock, material used in the construction of

24 : Part 1 : 1941 Locomotive, carriage and wagon axles (containing Nos. 1, 2, 2A, 3, 3A).

26pp. 2s. Amendments CF 9022, 1941 ; CF 9756, March 1942 amplifying previous amendment.

This part gives details for the manufacture and mechanical tests of locomotive, carriage and wagon axles.

*With local amendments.

24 : Part 2 : 1942 Locomotive, carriage and wagon tyres (containing Nos. 4, 5, 5a). 19pp. 2s. Amendment CF 9757, March 1942, superseding previous amendments.

This part deals with the manufacture and mechanical tests of locomotive, carriage and wagon tyres, standard methods of fastening locomotive tyres are given.

24 : Part 3 : 1942 Springs and spring steel (containing Nos. 6X, 6A, 6Y, 6B, 6C, 6D, 7X, 7A, 7Y, 7B, 7C). 40pp. 2s. Amendment PD 110, April 1943.

This part deals with carbon and silico-manganese steels for laminated, volute and helical springs. Details of material, manufacture and test are set out.

24 : Part 4 : 1941 Steel forgings, blooms and castings (containing Nos. 8, 9, 10). 20pp. 2s. Amendments CF 9451, February 1942 ; PD 31, October 1942.

This part gives details of material to be used and mechanical tests for steel forgings, blooms and castings for locomotives.

24 : Part 5 : 1943 Copper plates, rods, tubes and pipes and brass tubes (containing Nos. 11, 12, 12A, 13, 14 and 15). 47pp. 2s. Amendment PD 158, September 1943.

This part covers copper plates, rods and tubes, and brass tubes, for use in locomotive construction. Quality of material, tolerances on dimensions and mechanical tests are detailed.

24 : Part 6 : 1942 Steel plates, sections, bars and rivets for locomotive boilers, locomotives, carriages and wagons (containing Nos. 16, 17, 17A, 18, 18A). 47pp. 2s. Amendment CF 9368, January 1942.

Details are given of material, tolerances on dimensions and mechanical tests to be applied.

28 : 1932 *Superseded by B.S. 916 for the period of the war emergency.*

29 : 1941 Carbon steel forgings for ship and marine engine purposes.

10pp. 2s.

Steels of four grades ranging from 22–40 tons/sq. in. ultimate tensile stress are covered. The process and quality of the steel and the mechanical properties are specified.

31 : 1940 Steel conduits and fittings for electrical wiring.

NZ SA

35pp. 2s. Amendment CF 9846, March 1942.

This covers both plain (class A) and screwed (class B) conduit, and the corresponding fittings (couplers, boxes, elbows, etc.). Dimensions and tests are prescribed, and details of gauges are given.

32 : 1935 Steel bars for the production of machined parts for general engineering purposes.

17pp. 2s.

NZ

Three grades of steel are covered for bright blue or black finish. The chemical compositions and mechanical properties of the steels are specified and tolerances on the sizes of bright bar given.

33 : 1930 Carbon filament electric lamps.

19pp. 2s. Amendment CC 5230, October 1931 ; PD 16, September 1942.

Temporarily out of print.

The size and quality of different parts of the lamp are dealt with and conditions for selection and testing specimens are laid down. In the schedule are included tables of standard dimensions, voltages, life performance, etc., and an appendix containing an example of how results of life performance tests are computed.

37 : 1937 Electricity meters.

NZ SA

33pp. 2s. Amendment CE 8401, May 1938.

This specification applies to D.C. and A.C. meters such as ampere-hour meters or watt-hour meters up to 6000 A. current rating, for both portable and fixed types, precision and commercial grades. After definition of special terms used, a complete specification of constructional and performance requirements is given, including details of casing terminal arrangements, speed and direction of rotation, and limits of error. Attention is paid to variations due to changes of voltage, temperature, and other important operational features. The Appendices cover statements of precautions to ensure accurate performance and requirements when applying certain tests. The effect of stray fields is mentioned and a summary of performance requirements is tabulated for reference.

40 : 1908 Cast iron low pressure heating pipes, spigot and socket.

SA

16pp. 2s.

This specification covers quality, marking, and hydraulic testing, of low pressure heating pipes and full particulars of necessary dimensions are listed in the tables for straight pipes up to 100 ft. head working pressure. Application to various fittings is illustrated in the last figure.

41 : 1908 Cast iron flue or smoke pipes, spigot and socket.

18pp. 2s. Temporarily out of print.

The size, quality and weights for this class of pipe are given and illustrated. The dimensions for diameters and widths of spigot bands, and sockets are tabulated, including particulars for bends at various angles with and without soot doors, the standard sizes of which are contained in the last table.

42 : 1925 Reciprocating steam engines for electrical purposes.

SA

8pp. 1s.

This specification covers rated output, margin of capacity, steam and exhaust pressures, speeds, cyclic variation in speed and flywheel effects, synchronising speeds, and governing. Indication is also given of where the measurement of the pressure and temperature of the steam shall be made, of tests to be carried out, and of the standard equipment of the engine.

44 : 1909 Cast iron pipes for hydraulic power.

SA

20pp. 2s.

This specification refers to straight pipes, bends, tees and special castings of two classes, for working pressures from 700 to 900 lbs./sq. in. and from 900 to 1200 lbs./sq. in., respectively. It covers quality of material, mode of casting, freedom from defects, variation of weight, machining, marking, testing, and inspection. Tables of dimensions and weights of various types in the two classes are given.

45 : 1928 Sparking plugs, sparking plug holes, taps for sparking plug holes, and copper asbestos washers for automobile engines, dimensions of

18pp. 2s. Amendment CB 425, April 1930. Temporarily out of print.

This standard specifies certain fundamental overall dimensions for the plug, without imposing a limitation on the details of design, and deals specifically with the screw thread, its basic form, the tolerances on the plug thread and the tapped hole, with complete specifications for the gauges for the inspection of the thread tolerances. A standard nomenclature is given for the various parts of the plug.

46 : Part 1 : 1929 Keys and keyways and coned shaft ends.

SA

42pp. 3s. 6d.

This specification includes a comprehensive series of illustrated definitions of all of the usual types of keys, keyways, splines and serrations. The chemical composition, physical properties, and mechanical tests for steel key bars are specified. Detailed tables of dimensions and tolerances are given for square and rectangular, parallel and taper keys of plain and gib-head types are given for all

B.S.

shaft diameters from $\frac{3}{16}$ in. to 12 in. diameter. Peg feather keys are also tabulated, together with Woodruff keys and keyways from Nos. 10 to 255. Tables of tangential keys are given for shafts from 4 in. to 36 in. diameter. The standard proportions of cone end shafts are included.

46 : Part 2 : 1929 Splines and serrations.

SA

31pp. 2s. Under revision.

This specification includes the same series of definitions as Part 1. Detailed tables of dimensions are given for four and six spline shafts and holes (shallow and deep) of nominal diameters from $\frac{1}{2}$ in. to 6 in., for multiple splines from 1 in. to 10 in. nominal diameters, and for serrated shafts and holes from $\frac{1}{8}$ in. to 3 in. diameter. (See also specifications A 19 and A 20 in the aircraft series.)

46 : Part 3 : 1935 Solid and split taper pins.

AS SA

7pp. 2s.

The chemical composition and physical properties of the material are specified. The dimensions of solid and split pins are given for sizes from $\frac{1}{16}$ in. \times $\frac{1}{2}$ in. to $\frac{5}{8}$ in. \times 6 in.

47 : 1928 Steel fishplates for bull head and flat bottom railway rails.

SA

95pp. 5s. Amendments CB 5962, September 1928 ; CC 4858, August 1931.

The quality, chemical composition, tensile and bend tests are specified. Provision of templates is dealt with and punching of holes and placing of notches and oil-dipping described. Details of the dimensions and weights of the fishplates are given in an Appendix, with full size drawings of the sections.

51 : 1939 Wrought iron for general engineering purposes (grades A, B and C).

24pp. 2s. Amendment CF 4084, November 1939.

The specification covers three grades. The general clauses concern quality of material, rolling margins, tolerances, selection of test pieces, and methods of testing. Grade A (bars, billets, blooms and plates) and B (bars, billets, blooms and plates) are submitted to further specified tests, and other special tests are prescribed for grade C (bars and plates). Test requirements for tensile tests and forms of test pieces are tabulated.

52 : 1941 Bayonet lamp-caps, lampholders and lampholder-plugs (B.C. adaptors) for voltages not exceeding 250 volts, dimensions of

SA

30pp. 2s. Amendments CF 9283, January 1942 ; PD 93, March 1943 ; PD 204, January 1944.

This specification prescribes the dimensions of metal-cased and insulated holders and double- or single-contact 2- or 3-pin caps. Recommended gauges are described and illustrated.

53 : 1927 Cancelled, see B.S. 494.

57 : 1944 B.A. bolts, screws, nuts and washers.†

AS

48pp. 5s.

This specification gives the complete dimensions for B.A. bolts and screws with hexagon, countersunk, round, and cheese heads, raised countersunk head, raised cheese head and connection head, and for ordinary nuts and lock nuts, of sizes Nos. 0 to 16 inclusive.

Two sizes of washers are standardised, namely large washers for sizes 0 to 10 B.A. inclusive and small washers for sizes 0 to 8 B.A. inclusive.

61 : 1913 Copper tubes and their screw threads (primarily for domestic and similar work).

20pp. 2s. Temporarily out of print.

AS SA

The specification provides for the dimensions of low pressure, medium pressure and high pressure tubes for working pressures up to 50, 125 and 200 lb. per sq. in., in nominal sizes from $\frac{1}{8}$ in. to 4 in. The chemical composition and mechanised tests on the tubes are laid down. Detailed dimensions are given for the screw threads on the tube.

† War emergency issue.

B.S.

- 62 : 1913 Marine boiler stays, screwing for** NZ
3pp. Gratis.
The Whitworth form of thread, with 9 threads per in. for all screwed stays above 1 1/4 in. diameter and 6 threads per in. for longitudinal stays above 2 in. diameter having nuts on both sides of the plate, is specified.
- 63 : 1939 Road stone and chippings, sizes of** SA
17pp. 2s.
The specification covers nominal single sized stone and chippings, including gravel and slag, for road surfaces. Sizes are stated and sampling for tests (B.S. 812) specified. Tables of tolerances and elongation index are given and methods of testing, measurement of elongation index are described. Classification of rocks is included. Dimensions of test sieves are given.
- 64 : 1913 Steel fishbolts and nuts for railway rails.** SA
15pp. 2s.
The quality and manufacturing process of the steel is specified and the quality of the finished bolts and nuts is stated. Tensile, bend tests and unscrewing test are specified. Requirements are also included relating to margin of weight, marking, gauging and oiling.
- 65 : 1937 Salt-glazed ware pipes, including taper pipes, bends and junctions.** SA*
17pp. 2s.
This specification sets out the full dimensions for pipes, bends and junctions. Tolerances on dimensions, tests to be applied and method of marking are also dealt with.
- 66 : 1914 Copper-alloy three-piece unions (for low and medium pressure screwed copper tubes).**
27pp. 2s. Temporarily out of print.
This specification deals with unions for domestic plumbing and similar work for use with screwed copper pipe in accordance with B.S. 61. Tables of dimensions are set out for unions of 1/8 in. to 4 in. nominal size. The material, screw threads to be used and mechanical tests to be applied are specified.
- 67 : 1938 Ceiling roses, two- and three-terminal.** SA
18pp. 2s.
This specification covers both 2 1/2 in. and 2 in. diameter ceiling roses made of vitreous material and of synthetic resin mouldings, respectively, for use in circuits in which the voltage does not exceed 250 volts and the current, 5 amperes. It gives the requirements for the materials to be used, and for the types and dimensions of the component parts.
- 68 : 1914 Steel conductor rails, method of specifying the resistance of**
14pp. 2s. Temporarily out of print.
It is required that the resistance be expressed as the resistance in microhms at a temperature of 60°F. of a rail of the same material as the conductor rail in question, having a length of 1 yard and a weight of 100 lbs. Tables of reduction factors for converting measured values to the standard conditions are given. An Appendix gives reduction formulæ for expressing the resistivity of a rail in terms of standard copper.
- 74 : 1937 Charging plugs and sockets for electric battery vehicles.** NZ SA
22pp 2s. Amendment CE 9576, October 1938.
This specification applies to plugs and sockets intended for use in charging storage batteries for electrically-propelled vehicles. Standards are given for two sizes, viz., 50 and 150 amperes (continuous maximum rating) respectively, and maximum voltage of 250 volts. It gives the requirements for the materials to be used and for the dimensions of the parts with a view to securing interchangeability.

* With local amendments.

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- 76 : 1943** Tars for road purposes.
12pp. 2s.

Three types of road tar are included with a table of viscosities which indicates the appropriate type for the various uses. Subsequent tables cover schedules of requirements for the three types and a useful monogram for viscosities is reproduced. In the Appendices are notes on methods of testing.

- 77 : 1939** Voltages for transmission and distribution A.C. systems. NZ*
6pp. 1s.

Definitions of system voltage and declared voltage are followed by a list of standard voltages, ranging from 230 volts to 220 kilovolts. System voltage variation is also dealt with.

- 78 : 1938** Cast iron pipes (vertically cast) for water, gas and sewage and special castings for use therewith. NZ SA
97pp. 5s. Amendments CE 9994, November 1938 ; PD 155, September 1943.

This specification covers pipes from 1½ in. diameter up to 48 in. in four classes according to test pressure. The quality of the material, mechanical tests, coating, tolerances on weight and dimensions are among the requirements laid down. Fully dimensioned drawings of the sockets are given, together with tables of dimensions for a wide range of fittings, including bends, tees, syphons and branches, plugs, flanges, caps, tapers, angle branches, crosses, collars, etc. The Appendices contain details of flanges, bolts, etc. for various pressure heads.

- 79 : 1927** Special trackwork for tramways, report on British Standard
56pp. 2s. Amendment, January 1928. Temporarily out of print.

This report contains diagrams of all types of tramway track units (such as points, crossovers) commonly used and suitable names are added for each type. Standard methods of measuring dimensions and angles are included. Many tables are added showing main dimensions and arrangement for bolt, bond, and tie bar, holes, followed by further tables of approximate metrical equivalents.

- 81 : 1936** Instrument transformers. NZ SA
42pp. 2s. Amendment CE 2265, December 1936.

This covers both current transformers and voltage transformers. H.V. tests for transformers in permanent connection are specified and an applied h.v. test and an induced h.v. test described. Limits of temperature rise are stated. Rated currents, limits of error and over-current ratings for current transformers and rated voltages and limits of error for voltage transformers are given. Service conditions are specified and a classification according to accuracy is given. Over-current rating, maximum VA output, rating at frequencies other than 50 c./s., test voltages and temperature measurements are also dealt with.

- 83 : 1922** Aircraft dope and protective covering, standard of reference for
24pp. 2s. (Two amendments.) Temporarily out of print.

Standard formulæ for dope, solvents, and protective covering with specifications for each ingredient are given, with methods of conducting prescribed tests. The Appendices contain information on distillation apparatus, thermometer corrections, and notes on application of dope and protective covering.

- 84 : 1940** Screw threads of Whitworth form. AS NZ SA
65pp. 5s. Amendments CF 6059, May 1940 ; CG 623, June 1942 ; PD 99, April 1943 ; PD 328, January 1945 ; PD 377, August 1945. 10pp. 1s.

This specification defines the Whitworth form of thread, and includes a comprehensive series of definitions relating to screw threads. Complete tables of basic sizes and tolerances are given, for three grades of fit, for B.S. Whitworth threads from ⅛ in. to 3 in., B.S. fine threads from ⅜ in. to 1½ in., and B.S. pipe (parallel) threads (for general engineering purposes) from ⅛ in. to 1½ in. The formulæ used for the derivation of the tolerances are given, with explanations on pitch and

* With local amendments.

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angle errors, and the basic data is given in convenient tabular form for deriving the appropriate tolerances for Whitworth threads of special pitches, diameters, and lengths of engagement.

Amendment No. 3 (PD 377) (Truncated Whitworth form screw threads) gives complete tables of limits and tolerances for truncated bolts and nuts in the B.S.W., B.S.F., and B.S.P. series. The basic formulæ are given so that the limits for special threads may be determined. Recommendations are made for an appropriate limit-gauging system.

87 : ——— Airscrew hubs and their fixings.

87 : Part 1 : 1931 Airscrew hubs.

13pp. 2s.

The dimensions of airscrew hubs which affect their interchangeability for fitting into wooden airscrews are standardised. The dimensions of eleven standard sizes of hubs are given. Appendix I gives a summary of calculations for basis of hub standards ; Appendix II, the standard clearances and tolerances for airscrew bosses.

87 : Part 2 : 1931 Engine flange fixings.

10pp. 2s.

This part is concerned with the standardisation of the dimensions affecting the fixing of the hub to the engine shaft by the flange method. The recommendations made are based on the use of airscrew hubs conforming to Part 1 of B.S. 87 : 1931.

88 : 1939 Electric fuses up to 800 amperes and 250 volts to earth.

NZ

16pp. 2s.

This covers the performance and testing of fuses of rated currents from 5 to 800 amperes and for prospective currents (under test) up to 33 000 amperes. Temperature rise, fusing-factor, performance and design are specified and tests described in detail. A diagram of connections for duty-tests is given.

89 : 1937 Indicating ammeters, voltmeters, wattmeters, frequency and power-factor meters.

NZ SA

48pp. 2s. Amendments CF 8648, September 1941 (superseding previous amendment) ; CG 396, May 1942 ; PD 84, February 1943.

General considerations affecting the design and construction of sub-standard and first-grade instruments are dealt with, and the permissible limits of error are set out. Requirements for external shunts, and for the marking of the scales, are stated. Notes on the accuracy of different types of instrument, methods to be used in testing instruments, and terminal markings are included.

90 : 1940 Graphic (recording or chart-recording) ammeters, voltmeters, wattmeters, power-factor meters and frequency meters.

SA NZ

28pp. 2s.

General considerations affecting design and construction are dealt with, and chart-speeds are standardised. Limits of error are specified and provision is made for voltmeters of special accuracy. Variations in indication due to various influences are dealt with and notes on the accuracy of different types of instrument, on charts and driving mechanisms and terminal workings are included.

91 : 1930 Electric cable soldering sockets.

NZ

9pp. 2s. Amendment PD 19, August 1942.

This specification covers both lug (tubular or hot pressed) and clamp sockets. The material to be used, and finish are specified and tables giving full dimensions for each type are set out. War-time amendments designed to effect economy in the use of brass and solder are set out in Amendment No. 1. These amendments include a new range of tubular sockets.

92 : 1919 Included in B.S. 84.

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- 93 : 1919** Screw threads, British Association, with tolerances for sizes Nos. 0 to 15 B.A. 15pp. 2s. Amendment CF 6521, August 1940. AS SA NZ
This specification defines the form of the B.A. thread and gives the basic dimensions of threads from Nos. 0 to 25 inclusive. Complete tables of tolerances are given for threads Nos. 0 to 15 inclusive.
- 94 : 1920** Watertight glands for electric cables. NZ SA
12pp. 2s.
This specification covers four types of gland for the following purposes : decks, bulkheads, cast metal boxes and sheet metal boxes. Sketches of each type are given, showing full dimensions.
- 95 : 1919** Corrections to effective diameter required to compensate pitch and angle errors in screw threads of Whitworth form. 60pp. 5s. Temporarily out of print.
A series of tables giving the alterations in effective diameter necessary to compensate on a varying length of engagement for known errors of pitch and angle in screw threads of Whitworth form of all pitches from 28 to 2½ threads per inch. The use of the tables is explained by a series of examples.
- 96 : 1938** Carbon brushes (parallel-sided) for use on commutator and slip-ring machines. 15pp. 2s. Amendment CF 33, November 1938. NZ
This specification sets out the dimensions and tolerances of brushes for use on commutators and slip-rings. Details are given for the terminals and flexible leads.
- 97 : 1926** Watertight fittings for incandescent electric lamps. 14pp. 2s.
This specification covers bulkhead and well-glass types of fittings, giving details of construction and dimensions of the parts, with a view to securing interchangeability.
- 98 : 1934** Edison-type screw lamp caps and lampholders, dimensions of 18pp. 2s. Amendment PD 16, September 1942.
Four sizes of thread, viz., goliath, medium, small and miniature are specified and limiting voltages and wattages for each size are given together with illustrations showing the dimensions required for caps, sockets, gauges and standard 'test finger.' Particulars of central contact area, type of terminals, clearances and tolerances are also included.
- 99 : 1922** Copper-alloy pipe fittings screwed for low and medium pressure B.S. copper tubes. SA
52pp. 3s. 6d. Amendment, October 1927. Temporarily out of print.
The fittings dealt with in this specification are for domestic plumbing and similar work and for use with screwed copper pipe in accordance with B.S. 61. A table of nomenclature is given and form of ends of fittings, screw threads (Whitworth), material and testing procedure specified. Forms and dimensions of sockets, caps, plugs, bushes, elbows and tees for short and long-sweep fittings, and of return bend, are specified and design methods described, for nominal sizes from ¼ in. to 4 in.
- 101 : 1929** Tramway tyres. 13pp. 2s. Temporarily out of print.
Two alternative grades are provided for : grade X, 70/80 tons per sq. in. and grade Y, 65/75 tons per sq. in. tensile breaking strength. Quality of material and heat treatment (grade X : hardened and tempered, grade Y : optional) are specified and testing procedure is described. grade X : falling-weight test or dropping test ; grade Y : dropping test.

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- 102 : 1930** Tramway axles. AS NZ
24pp. 2s. Amendment CF 9755, March 1942. Temporarily out of print.
Specifications are given for three types of steel. In each the quality of material, method of manufacture (forged or rolled), oil treatment testing procedure (falling weight, tensile, cold bend) and independent or additional tests are specified and diagrams of test pieces and methods given.
- 103 : 1926** Falling weight testing machines for rails.
4pp. Gratis.
Constructional details of the testing machine are given.
- 105 : 1919** Light and heavy bridge type railway rails. SA
10pp. 2s.
This consists of a table of standard dimensions for light and heavy bridge-type railway rails of sizes from 14 lb. per yard to 70 lb. per yard.
- 107 : 1919** Rolled sections for magnet steel.
6pp. 2 plates. 2s. Temporarily out of print. SA
This comprises a list of standards, derived from a larger list considered, and those sizes in more common use are specially indicated. There is a supplementary list of sections used by magneto makers.
Attention is drawn to tolerances and condition of bars, and thickness, and width of bars, in relation to cross sectional area are tabulated.
- 108 : 1933** Graphical symbols for general electrical purposes. NZ SA
60pp. 2s. Under revision. See B.S. 447.
This contains illustrations of standard graphical symbols used in electrical work and classified into 9 main sections, covering : generating and sub-stations ; Transmission lines ; rotary machines, rectifiers and transformers ; switchgear ; meters ; resistors, etc. ; traction ; interior wiring ; and steam turbine plant.
Instructions are given for combining symbols indicating nature of current, polarity etc. and a typical diagram and list of code letters are added.
For symbols for telecommunications see B.S. 530.
- 115 : 1938** Metallic resistance materials for electrical purposes. NZ SA
12pp. 2s.
This specification covers five classes of resistance materials viz :
A. Low temperature coefficient at temperature not exceeding 60°C.
B. Higher temperature coefficient at temperature not exceeding 200°C.
C. Temperature coefficient varying over wider range at temperatures up to 350°C.
D. For high temperatures not exceeding 850°C.
E. For high temperatures not exceeding 1050°C.
Wires, sheets, strips and tapes are included, tolerances on resistivity and sizes are listed and a table of standard wire sizes is included.
- 116 : 1937** Oil circuit-breakers, oil switches and oil isolating-switches for alternating current circuits.
116 : Part 1 : 1937 Three-phase oil circuit breakers with breaking-capacity ratings up to 500 MVA, single-phase oil circuit-breakers, oil switches, and oil isolating switches. AS NZ SA
83pp. 3s. 6d. Temporarily out of print.
116 : Part 2 : 1937 Three-phase oil circuit-breakers with breaking-capacity ratings above 500 MVA. AS NZ SA
89pp. 3s. 6d. Temporarily out of print.
Preliminary sections deal with the basis of the specification, and definitions and symbols. Then follow sections covering : rating and marking ; limits of temperature rise ; dimensions of insulators and clearance distances ; routine tests ; and type tests. Appendices cover : particulars to be given when ordering or tendering ; service conditions ; care and maintenance ; measurement of power factor, etc. ; an example of a report on a type-test ; calculation of short-circuit currents ; and the selection of standard oil circuit-breakers.

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- 119 : 1930 Clear baking oil insulating varnish for electrical purposes.**
15pp. 2s.
This specification gives limiting values of properties and methods of testing, and covers : finish ; volatile matter ; specific gravity ; viscosity ; drying time ; electric strength at 90°C. ; resistance to moisture ; ageing ; acidity or alkalinity of varnish film ; effect of oil ; and flash point.
- 122 : 1938 Milling cutters and reamers.** AS NZ SA
85pp. 3s. 6d.
Full dimensions, with tolerances are specified for the diameters and keyways of arbors, for non-form-relieved and form-relieved cutters, end mills and slot drills with parallel and taper shanks, parallel and taper reamers, countersinks, counterbores and hollow mills. Sketches and descriptions of the various forms of cutters and reamers are included.
- 125 : 1930 Hard-drawn copper solid and stranded circular conductors for overhead power transmission purposes.** NZ SA
15pp. 2s. Amendment CD 1567, November 1933.
Standard values of the physical constants of hard-drawn copper are stated. Data on standard resistances, weights and sizes, and mechanical properties are given, for both solid wires and standard conductors. Tolerances are indicated, and requirements are given for joints and for testing. The appendix gives the international standards of resistance for copper.
- 128 : 1929 Bare annealed copper wire for electrical machinery and apparatus, dimensions and resistances of** AS NZ
19pp. 2s. Amendments CC 537, April 1930 ; CD 8127, November 1935.
Standard values of the physical constants of annealed copper are stated. Data on sizes, weights, and resistances and temperature coefficients are given for both plain and tinned wires. Appendices give the International Standards of resistance for copper, and the weights in grains per yard of standard wires.
- 131 : 1933 Notched bar test pieces, forms of** NZ SA
21pp. 2s. Amendment PD 52, December 1942.
Standard forms and dimensions for test pieces for various types of notched bar testing machines are given with recommendations as to grips to be used in the testing machines. A note on correlation of Izod and Charpy test results is also included.
- 132 : 1930 Steam turbines.** AS* NZ
10pp. 2s. Amendment CD 9514, March 1936. Spanish and Turkish translations 2s. each.
This is a performance specification. and prescribes the requirements regarding governing characteristics, speed adjustment, steam consumption guarantees, and parallel running. A hydraulic test for parts exposed to boiler pressure, and limits on critical speed are prescribed, and a list of standard equipment is included. For the testing of steam turbines see B.S. 752.
- 134 : 1927 Iron or steel tubular poles for telegraph and telephone purposes.** SA
45pp. 10s. 6d. Amendments CC 4219, May 1931 ; CE 6356, April 1938.
See B.S. 471. Temporarily out of print.
Four types of pole are considered, the tapered tubular pole in 2 or 3 parts, riveted multiple-section pole, 1- or 2-piece pole in reduced parallel steps, and multiple-section pole in parallel steps. Dimensions and test requirements are given and illustrated by tables and diagrams, which include fittings and accessories.
* With local amendments.

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- 135 : 1939** Benzoles (pure benzole, pure benzole for nitration, motor benzole, 90's benzole, industrial benzole.) S 1
62pp. 3s. 6d.
These specifications cover colour, specific gravity and distillation range and include limits for total sulphur, corrosive sulphur, hydrogen sulphide and mercaptans and residue on evaporation together with neutrality and acid-wash tests. Crystallising point is also specified in the specifications for pure benzole for nitration and for motor benzole and the latter also includes an oxidation test and requirements as to odour. Sampling and test methods are described.
- 137 : 1941** Porcelain and toughened glass insulators for overhead power lines (3.3 kV. and upwards). SA
33pp. 2s.
The various types (pin, line post, suspension, tension) are defined and the material design, and rating, is specified for porcelain insulators. The tests are described in detail. Modifications for toughened glass are given. Notes on selection for various atmospheric conditions and on insulation co-ordination are added and forms and dimensions of fittings are given.
- 138 : 1935** Portable chemical fire extinguishers of the acid alkali type (excluding foam type). SA
8pp. 2s. Amendment PD 157, September 1943.
The class of extinguisher to which this specification refers is that in which the pressure required to expel the liquid contents is generated by the chemical action of an acid in conjunction with a carbonate and/or bi-carbonate solution. This specification gives the requirements of the materials used, and the type and dimensions of the various parts. Testing and marking are also covered.
- 139 : 1921** Red fir wood poles for telegraph and telephone lines.
8pp. 2s.
Each pole shall contain the natural butt of the tree. Tables of dimensions are given, methods of creosoting, and properties of the creosote oil are specified. Methods for determining these properties are outlined.
- 140 : 1935** Liquid starters and controllers for the rotor circuits of induction electric motors. NZ SA
17pp. 2s. Amendment CD 6951, July 1935.
The various types of starters and controllers are defined and type of enclosure, rating and size are specified. Notes on design and construction are given and the tests described in detail. Information to be supplied to the maker is stated.
- 142 : 1942** Electrical protective relays.
28pp. 2s.
This specification defines the terms used in connection with electrical protective relays : sets out the groups, according to characteristics, under which they shall be classified : and gives the limits of current-setting and limits of error permissible. Test requirements are stated.
- 143 : 1938** Malleable cast iron and cast copper alloy pipe fittings (screwed B.S.P. taper thread) for steam, water, gas and oil. SA
58pp. 3s. 6d.
This specification gives standard dimensions for all of the customary types of equal and reducing fittings for nominal pipe sizes from $\frac{1}{8}$ in. to 6 in. inclusive. The fittings are, in general, suitable for working pressures up to 200 lb. per sq. in. in the case of water, and up to 150 lb. per sq. in. in the case of steam, gas or oil. Tests for porosity and ductility are prescribed.
- 144 : 1936** Coal tar creosote for the preservation of timber (types A, A2 and B).
18pp. 2s. Amendment CF 7363, February 1941.
Includes specifications for three types of coal tar creosote. The specifications cover specific gravity, fluidity, distillation range and include limits for water content, residue after distillation, tar acids and matter insoluble in benzole. Sampling and test methods are described.

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- 146 : 1941** Portland-blastfurnace cement not exceeding 65 per cent blastfurnace slag. 30pp. 2s. Amendment CF 9916, March 1942.
Composition and sampling is specified and the tests for fineness, chemical composition, strength, setting time and soundness are described. A compression test may be substituted for the tensile test. Details of the test apparatus and method of carrying out the tests are given in Appendices.
- 148 : 1933** Insulating oils for electrical purposes (excluding cables). AS* NZ
37pp. 2s. Amendments CF 9259, December 1941 ; PD 74, January 1943.
An introductory section refers to the classification of insulating oils, and their selection for use. Limiting values of properties are specified, and methods of testing are described, viz. : sampling for tests ; tendency to sludge ; loss by evaporation ; flash point ; viscosity ; procedure for cold test ; electric strength ; acid value ; saponification value ; copper discoloration ; and procedure for crackle test. A recommended type of drum for packing is indicated.
- 149 : 1922** Wrought iron wheel centres for electric tramway cars.
13pp. 2s.
The quality of material, rough-machining and testing of the wheels is specified. Sections and dimensions of straight-type and dished-type driving and pony wheels are given.
- 150 : 1922** Cast steel wheel centres for electric tramway cars. *Under revision.*
- 153 : —** Girder bridges.
153 : Parts 1 & 2 : 1933 Part 1, Materials ; Part 2, Workmanship. SA
20pp. 2s. Amendment CF 7389, March 1941.
The quality of the materials is specified. The standard of workmanship for each operation in the construction, and the method of calculation of the weight from the dimensioned drawings is specified. The appendix gives a number of points upon which the decision of the engineer is required at the time of inviting tenders.
153 : Part 3 : 1937 Loads and stresses. SA
28pp. 2s. Amendment 2, March 1941.
This part specifies the stresses to be considered in the design of a girder, and the maximum working stresses for the materials. The appendix deals with impact effects on railway bridges.
153 : Parts 4 & 5 : 1937 Part 4, Details of construction. Part 5, Erection. SA
14pp. 2s.
This part gives details of construction covering effective spans, lengths and depths ; sectional areas ; plate and lattice girders ; and rivets, bolts and pins. Erection on site and subsequent painting are dealt with.
153 : Appendix No. 1 : 1925 Tables of British Standard unit loadings for railway girder bridges and highway girder bridges. SA
22pp. 2s.
Tables of standard unit loading for railway bridges for a single line, and standard unit loading for highway bridges, to be used in conjunction with parts 3, 4 and 5 of this specification are set out.
- 156 : 1943** Enamelled high-conductivity annealed copper wire. NZ
14pp. 2s. Amendment PD 313, December 1944.
Two types of enamelled wire are included, these types being differentiated by the thickness of the enamel covering and are designated 'normal covering' and 'thick covering' respectively. The specification is intended to cover the requirements of enamelled wires used for winding purposes. Diameters, resistances and thicknesses of enamel are specified for sizes from 0.002 in. up to 0.128 in. Tests are also included.

* With local amendments.

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- 158 : 1938** Marking and arrangement for switchgear bus-bars, main connections and auxiliary wiring. NZ SA

25pp. 3s. 6d. Temporarily out of print.

This specification gives the standard colours for use with A.C. and D.C. systems. A number of drawings and diagrams are included illustrating typical connections. Many of the diagrams are reproduced in colour in order to give a clearer idea of the many colour combinations used for markings.

Connections of generators to bus-bars (phase sequence and polarity) are also shown.

- 159 : 1932** Bus-bars and bus-bar connections in air, oil or compound. AS* NZ SA
20pp. 2s. Amendments CE 60, May 1936 ; CE 6738, March 1938 ; PD 73, January, 1943.

This specifies the quality of the material (copper and aluminium), dimensions of flat, round and tubular bars, limits of temperature, mechanical strength, and clearance distances.

Other matters dealt with include service conditions, thermal losses in bus-bars and connections, calculation of mechanical forces due to heavy currents, and the current rating of bus-bars.

- 160 : 1936** Slate and marble insulating slabs for electric power switchgear, up to and including 660 volts, A.C. and D.C. NZ SA

10pp. 2s. Temporarily out of print.

This specification deals with quality of material ; insulation resistance ; standard dimensions and tolerances on dimensions, shape and flatness of slab.

- 161 : 1940** Tungsten filaments general service electric lamps. NZ
41pp. 2s. Amendments PD 16, September 1942 ; PD 78, February 1943.
See B.S. 555 and 867.

This defines the conditions for assessing the life and quality of tungsten lamps for general use (single coil type to 1500 watts and coiled coil type to 100 watts). Details of mechanical requirements are followed by tables of standard dimensions and for initial rating and life performance. The selection of lamps for test is dealt with on a statistical basis.

- 162 : 1938** Electric power switchgear for indoor and outdoor installations up to and including 220 000 volts. NZ SA
43pp. 2s.

This relates to switchgear as used in connection with generating, transmitting, transforming and converting plant and large motors. Amongst the matters dealt with are protection against fire, interchangeability, protection of operator, safety devices, signal lamps, clearances and tests. Notes on isolation of sections and circuits, section delimitation, and service conditions are added. A list of other specifications to be consulted is included.

- 163 : Part 1 : 1943** Galvanised steel wire strand and solid steel wire for signalling purposes. NZ
9pp. 2s. Amendment PD 431, December 1945.

Deals with seven wire strand for railway signals in three tensiles with *maximum* elongation on the wire which is required to withstand reversed bending tests. Centre wire in strand is oversize to ensure equally distributed load, increased flexibility and lessened tendency to kink. There is a cautionary foreword as to care in handling and installation to prevent premature failure in service.

- 163 : Part 2 : 1945** Galvanised solid steel wire for signalling purposes.
10pp. 2s.

Deals with 10 S.W.G. solid steel wire for railway signals in four tensiles with tests on the wire as in Part 1.

* With local amendments.

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- 164 : 1924 War-time issue, 1941 *Limits and fits for engineering.* AS NZ
22pp. 2s.

This British Standard gives the nomenclature and definitions of terms used in limit systems, and an explanation of the British Standard unilateral and bilateral systems of limits, together with complete tables of limits of tolerance for eleven qualities of shafts and fourteen qualities of holes of diameters up to 25 in. The principles upon which the system is based are explained so that the appropriate limits for larger diameters may be readily determined. An illustrated explanation is given of the disposition of inspection and workshop gauge tolerances relative to the tolerances on the work.

- 164 : 1924 Supplement to war-time issue 1941. *Limits and fits for engineering (metric units).*
5pp. 1s.

This supplement contains tables for unilateral and bilateral limits of tolerance for holes and shafts in metric dimensions. The tables are compiled exactly as those in B.S. 164, which contains a full explanation of the system of limits and fits.

- 165 : 1929 *Incorporated in B.S. 785.*

- 168 : 1936 *Electrical performance of industrial electric motors and generators, with class A insulation. Rating permitting overloads.* NZ SA

36pp. 2s. Amendments PD 299, October 1944 ; PD 418, November 1945.

This covers a range of D.C., A.C., medium- and high-voltage industrial machines between fractional H.P. motors (B.S. 170) and large machines over 2.5 B.H.P./r.p.m., but does not apply to turbo-types (B.S. 225), rotary convertors (B.S. 172), traction motors (B.S. 173) or flameproof types (B.S. 270).

It defines a test rating such that a sustained overload may be carried after steady temperature on full load has been attained. Types of enclosure are defined, and temperature limits and various tests are prescribed.

- 169 : 1925 *Electrical performance of large electric generators and motors excluding alternators of the steam turbine driven type. Rating permitting overloads.* NZ
45pp. 2s. Amendment PD 300, October 1944, superseding previous amendments. Temporarily out of print.

This specification applies to electric generators and motors (other than A.C. steam turbo-generators). Where the rated load, plus overload, is greater than 2½ B.H.P./r.p.m. and covers a test rating such that a sustained overload may be carried after steady temperature on full load has been attained. Types of machine, ratings, limits of temperature rise and tests are prescribed for machines insulated with class A and class B materials. For similar machines having continuous rating see B.S. 226.

- 170 : 1939 *Electrical performance of fractional horse-power electric motors and generators with class A insulation.* NZ

23pp. 2s. Amendment PD 298, October 1944.

This specification refers to fractional horse-power A.C. and D.C. motors, including 'universal' type, A.C. and D.C. generators, and rotary convertors, having windings insulated with class A material. It covers : standard voltages, frequencies, phases and wave-forms ; preferred horse-powers and speed ; classes of rating ; limits of temperature rise ; excess current and torque ; tests ; tolerances ; and marking. Appendices give statements on the classification of insulating materials. The effects of cooling-air temperature and altitude, and the information to be given with enquiry and order.

- 171 : 1936 *Electrical performance of transformers for power and lighting.* NZ SA
84pp. 3s. 6d. Amendment PD 297, October 1944.

This specification applies to single-phase and polyphase transformers, including auto-transformers, having windings insulated with class A and/or class B materials, the transformers being rated at 1 kVA, or over, if single-phase, and 5 kVA, or over,

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if polyphase. It covers : types of cooling ; standard sizes, voltages, tapplings, frequency and phases ; classes of rating ; tertiary windings ; limits of temperature rise ; tests ; rating-plate and diagram of connections and oil. Appendices include : classification of insulating materials ; service conditions ; temperature measurements ; method of declaring efficiency ; calculation of inherent voltage regulation ; particulars with enquiry and order ; recommended fittings for transformer tanks ; and terminal markings.

172 : 1927 Electrical performance of rotary convertors (continuous rating permitting overloads.) NZ SA

27pp. 2s. Temporarily out of print.

This specification defines the performance in terms of wave form ; rating ; limits of temperature rise ; excess load ; commutation ; parallel running ; efficiency and power factor ; high voltage, and performance and type tests ; and overspeed. Other matters dealt with are classification of insulating materials ; service conditions ; temperature measurements ; method of declaring efficiency ; and terminal markings. This specification also covers the associated apparatus (e.g., direct-driven exciters, direct-driven boosters, etc.) : but it does not apply to rotary convertors for railway service.

173 : 1941 Traction motors and associated rotating electrical machines for use on rail or road vehicles. NZ

29pp. 3s. 6d.

This covers the classification, rating and methods of test for rotating electrical machines forming part of the equipment of electrically-propelled rail and road vehicles. The tests to be carried out comprise temperature rise, over-speed, commutation, and high voltage tests. Efficiency shall be determined as specified, and characteristic curves plotted. Appendices cover : classification of insulating materials ; standard methods of determining efficiency ; losses in driving mechanism ; and terminal markings.

174 to 181 : 1938 Overhead line-wire material (non-ferrous) for telegraph and telephone purposes. NZ SA

32pp. 2s. See B.S. 16.

174. Hard drawn copper wire.

175. Bronze wire and cadmium-copper wire.

Amendments October 1939, September 1941 and July 1942.

176. Copper binding and jointing wire.

177. Copper tapes and binders.

178. Bronze tapes and binders and cadmium-copper tapes and binders.

179. Copper jointing sleeves No. 10.

Amendment April 1943.

180. Copper jointing sleeves Nos. 000, 00, 0, 1, 2, 3, 4 and 7.

Amendments October 1939 and April 1943.

181. Bronze jointing sleeves Nos. 5, 6, 8, 9, 11 and 12, and cadmium-copper jointing sleeves Nos. 13, 14, 15, 16, 17, 18, 19 and 20.

Amendment October 1939.

The quality of the material and dimensions of the wire are specified. The test requirements for electrical (resistance) tests (for 174 and 175), and mechanical tests (lapping, twisting, tensile for 174, 175, 176, elongation for 176, 177, 178) ; and twisting tests (for 180 and 181) are stated and marking and packing described. The physical and mechanical properties, with tolerances, are given in tables.

182 to 184 : 1938 Galvanised iron and steel wire for telegraph and telephone purposes. SA
23pp. 2s. Amendment CF 8400, September 1941. See B.S. 16.

182. Galvanised iron and steel line wire.

183. Galvanised steel stay wire and suspension strand.

Amendment September 1941.

184. Galvanised steel binding and jointing wire.

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Quality of material and dimensions are specified and electrical (resistance) and mechanical test requirements are stated and the testing methods described. (For galvanising test see B.S. 443). The physical properties (with tolerances) are given, and coiling and packing is described.

- 185 : 1940** **Aeronautical terms, glossary of** NZ
166pp. 7s. 6d. Amendments CF 6884, November 1940 ; PD 185, November 1943 ; PD 289, October 1944.

An exhaustive list of definitions of terms for use in aeronautics for all airborne structures including parachutes and balloons and covering such fields as power plant, instruments, navigation, radio, and meteorology.

An appendix contains symbols used in aerodynamical calculation with many illustrations of typical structures showing resultant forces, slip angles, etc.

- 186 : 1923** **Cast-iron and enamelled cast-iron steam-jacketed pans.** AS NZ
15pp. 2s. Temporarily out of print.

This specification covers shallow type pans of 25, 50, 75 and 100 gal. capacity and deep type pans of 10, 25, 50, 100, 150 and 200 gal. capacity, each of two classes, A and B, for maximum permissible working steam pressures of 35 and 45 lb. per sq. in. respectively. Full dimensions and design details are given and hydraulic and steam tests are prescribed.

- 187 : 1942** **Sand lime (calcium silicate) bricks.**
14pp. 2s.

This specifies the size, strengths and qualities, for four classes of brick. Methods of carrying out the crushing, transverse and shrinkage tests are included with a note on the type mortars with which the bricks should be used.

- 188 : 1937** **Determination of viscosity of liquids in absolute (C.G.S.) units, method for the** NZ
35pp. 2s. Amendment CF 4734, January 1940.

Particulars are given of simple and accurate methods which are suitable for use in commercial and other laboratories. Two types of viscometer are recognised as standard, viz., tube viscometers and falling-sphere viscometers. The types of tube viscometers dealt with in this standard are those known as the U-tube viscometer, various designs being described and illustrated. A falling sphere viscometer is also described. Uses of the various types are indicated. Appendices contain various data likely to be of service to users.

- 189 : 1925** **Cast-iron filter plates and frames**
37pp. 2s.

General constructional requirements are dealt with and standard designs are specified in a series of diagrams and corresponding tables of dimensions. Five nominal sizes are shown, 19 in., 25 in., 32 in., 38 in. and 48 in.

- 190 : 1924** *Superseded by B.S. 1083 for the period of the war emergency.*

- 191 : 1924** *Withdrawn. See B.S. 1083.*

- 192 : 1943** **B.S.W. and B.S.F. open-ended carbon steel spanners.** AS
10pp. 2s.

This specification relates to open-jaw single and double ended carbon steel spanners for all of the standard sizes of B.S.W. and B.S.F. bolts and nuts from $\frac{7}{32}$ in. B.S.F. to 2 in. B.S.W. It does not prescribe the composition of the material nor the detailed design of the spanner head but ensures that the spanners are suitable for satisfactory service by means of a proof test.

In order to preclude against the possibility of spanners being manufactured unduly large in the head, the specification defines a limiting space within which the spanner must be able to operate. The detailed dimensions which are prescribed relate to the minimum and maximum width of jaw opening, the length, and the thickness of the spanner head.

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193 : 1929 *Withdrawn. See B.S. 1083.*

194 : 1926 Switchgear equipments for direct-current circuits when the voltage does not exceed 660 volts. SA
33pp. 2s.

Diagrams of connections and tables of equipment for various ratings and applications are given for (I) D.C. feeders for 1-, 2- and 3-wire circuits with circuit-breakers, (II) D.C. feeders for 1-, 2- and 3-wire circuits with fuses, (III) D.C. generators for 2- and 3-wire service, (IV) rotary convertor service, 2- and 3-wire. (V) paralleling voltmeters.

195 : 1929 Switchgear equipments for three-phase alternating-current circuits when the voltage does not exceed 33 000 volts. SA
71pp. 2s.

Diagrams of connection and tables of equipment for various ratings are given for the following :

I. II. Generator, feeder and transformer equipment with air-break circuit-breakers, fusible cut-outs or oil-immersed circuit-breakers, excitation, busbar sectionalising and paralleling included.

III. IV. Cage-rotor and slip-ring induction motor, or synchronous motor, and rotary convertor, with air-break or oil-immersed circuit-breaker or fusible cut-outs.

V. La Cour motor convertor.

VI. Neutral-earthing.

VII. Synchronising.

196 : 1930 Reversible protected type two-pin plugs and sockets with earthing corrections. 23pp. 2s. Amendments CC 2062, October 1930 ; CE 9577, October 1938 ; CG 368, May 1942. Temporarily out of print. SA

This is mainly a dimensional standard designed to ensure interchangeability. The plugs and sockets are intended for use on circuits up to 250 volts between any two poles, and the standard 'sizes' are 5, 15 and 30 amperes. The specification indicates how the plugs can, if desired, be rendered non-reversible. The plugs and sockets can be adapted for use as cable couplers and as connectors for portable appliances.

198 to 203 : *Withdrawn. See B.S. 1035-1040.*

204 : 1943 Glossary of terms used in telecommunication. 107pp. 3s. 6d.

This deals with terms included in B.S. 204 : 1930 and B.S. 205 : 1936 relating to telegraphy, telephony, radiocommunication and television, and in the supplement to B.S. 205 dealing with radio direction finding. There has been considerable revision and extension and a short new section on fire alarms is included. General terms used in all the above branches of telecommunication are brought together in the opening section.

205 : 1943 Glossary of terms used in electrical engineering. 186pp. 7s. 6d.

The object of this glossary is to standardise and to co-ordinate the technical terms used in electrical science and industry. The glossary covers all branches of electrical engineering with the exception of telecommunications (for which see B.S. 204).

The various parts can be obtained separately as follows :

205 : Part 1 : 1943. Section 1. General terms. SA

pp. 1-32. 2s.

205 : Part 2 : 1943. Section 2. Machines and transformers.

pp. 33-50. 2s.

205 : Part 3 : 1943. Section 3. Switchgear and control gear.

Section 4. Meters and measuring instruments.

pp. 51-76. 2s.

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- 205 : Part 4 : 1943. Section 5. Transmission and distribution.
pp. 77-90. 2s.
- 205 : Part 5 : 1943. Section 6. Electrochemistry ; Section 7 Traction.
pp. 91-111. 2s.
- 205 : Part 6 : 1943. Section 8. Lighting and heating.
pp. 112-126. 2s.
- 205 : Part 7 : 1943. Section 9. Lightning and surge phenomena.
Section 10. Miscellaneous applications (including lifts,
welding, x-rays, electromedical terms).
pp. 127-148. 2s.
- 205 : Part 8 : 1943. Index to Parts 1-7.
pp. 149-186. 1s.
- 206 : 1941 Silver solder (grades A, B and C). NZ SA
6pp. 2s.
Grades A and B are alloys of silver, copper and zinc, and grade C an alloy of silver, copper, zinc and cadmium, with chemical compositions as specified in this standard. An appendix gives the melting range of the three grades of solder.
- 207 : 1924 Special brass ingots for castings. 8pp. 2s.
There are five alloys and the chemical composition and mechanical properties of each are specified. Other requirements are stated for provision of samples, testing facilities and inspection.
- 208 : 1924 Special brass castings. 9pp. 2s.
There are five alloys and the chemical composition and mechanical properties of each are given. Other requirements relate to provision of samples, testing facilities and inspection.
- 209 : 1937 Fuel oils for diesel engines (petroleum and shale oils). SA
31pp. 2s.
Tables of test requirements and details of methods of testing are given, with regard to flash point, hard asphalt content, ash content, viscosity, water content, pour point, Conradson carbon, sulphur content, distillation, aniline point and gross calorific value.
- 210 : 1939 Lubricating oils, classification of SA NZ
13pp. 2s. Temporarily out of print.
This classification defines five main groups, each divided into several grades according to viscosity. It is not intended to define the suitability of an oil for any specific purpose, but notes on the selection of suitable grades are given. A viscosity nomogram and a conversion table for centistokes and redwood seconds are given.
- 214 : 1939 Distribution-boards (up to 100 amperes per outgoing circuit and 250 volts to earth). SA
12pp. 2s.
This specification covers 8 types of board, ranging from single-pole-and-neutral to 4-pole-and-neutral. Construction features are dealt with, and high-voltage and temperature-rise tests are specified.
- 215 : 1934 Hard-drawn aluminium and steel-cored aluminium conductors for overhead power transmission purposes. AS NZ SA
18pp. 2s.
Standard resistances, weights and sizes of solid wires and stranded conductors are given, with allowable tolerances. Number of joints, freedom from defects,

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mechanical and resistance tests are specified. Tables giving the standard mechanical and electrical properties for solid aluminium wires, stranded aluminium and steel-cored aluminium conductors are included.

- 216 : 1936** Vulcanised fibre (natural colour) sheets for electrical purposes. A3
27pp. 2s.
This applies to sheet $\frac{1}{16}$ to 1 in. thick and includes details of tensile, shearing and bending strength requirements. Tolerances on thickness, moisture loss, shrinkage, and finish are also dealt with and tests and abridged tests are outlined in the appendices. For rods and tubes see B.S. 934.
- 217 : 1936** Red lead for paints. NZ
13pp. 2s.
The composition of the red lead and the size of particles are specified. The method of sampling and the tests to be carried out are described, together with the method for the comparison of colour.
- 218 : 1940** Brass bars and sections (suitable for forgings) and drop forgings. AS NZ
11pp. 2s.
Chemical composition, quality of material, methods of manufacture, provision of test pieces, and mechanical tests to be carried out are specified.
- 219 : 1942** Soft solders (grades C, D, G, M and N).† SA
6pp. 2s. Memoranda CG 320, May 1942 ; PD 48, November 1942 ; PD 70, January 1943.
As a war emergency measure soft solders are restricted to five grades. The chemical composition is specified for each grade, and notes are given on the use for which each grade is primarily intended. Additional memoranda give recommendations for effecting economy in the use of tin for solders. Methods of jointing to economise in the use of solder are also shown.
- 220 : 1926** Fine zinc (or spelter) grades A and B.
5pp. 2s. Temporarily out of print.
Chemical analysis for each grade is specified, together with method of taking samples for analysis, and method of marking.
- 221 : 1926** Special zinc (or spelter).
5pp. 2s. Temporarily out of print.
The chemical composition, method of taking samples for analysis and the marking of each plate are specified.
- 222 : 1926** Foundry zinc (or spelter).
5pp. 2s. Temporarily out of print.
The chemical composition, method of taking samples for analysis, and marking are specified.
- 223 : 1931** Electrical performance of high-voltage bushing-insulators.
33pp. 2s.
This covers indoor and outdoor types, including cable-end bushings, but not plug and socket insulators for draw-out switchgear. The voltage range is from 600V. to 220 kV. Tests required for different services are described and tables of appropriate ratings are included.
- 224 : 1938** Steel for die blocks for drop forging. AS NZ
9pp. 2s.
Requirements for quality, heat treating, normalizing, etc., are listed and the chemical composition and Brinell hardness for each of five suitable steels are specified.

† War emergency issue.

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- 225 : 1925** Electrical performance of alternators of the steam turbine driven type. NZ
34pp. 2s. Amendment CB 7901, May 1929. Temporarily out of print.
Spanish and Turkish translations 2s. each.
This defines continuous and service ratings of A.C. turbo-alternators, and to alternators not steam turbine driven if of similar high-speed construction, having windings insulated with class A and class B materials. Limits of permissible temperature rise are given, with details of high voltage and other tests.
- 226 : 1925** Electrical performance of large electric generators and motors (excluding alternators of the steam turbine driven type), continuous maximum rating. NZ
45pp. 2s. Amendment PD 301, October 1944, superseding previous amendment
Temporarily out of print.
This defines the continuous rating of generators and motors (excepting steam-driven alternators) for ratings over 2½ B.H.P./r.p.m. Limits for temperature-rise are given, with descriptions of high-voltage and other tests, for machines insulated with class A and class B materials. For similar machines having a rating permitting overloads see B.S. 169.
- 227 : 1934** Steel arches for use in mines (straight-sided, horse-shoe and splay-legged). NZ
11pp. 2s. Amendment CE 5502, November 1937.
The dimensions and tolerances of 9 sizes of arches from 6 to 16 ft. diameter are specified together with the steel sections from which they are made. Fishplates and fish bolts are covered and a specification is included for the steel from which the arches are manufactured.
- 228 : 1934** Steel roller chains and chain wheels. AS NZ
26pp. 2s.
This specification gives a complete schedule of dimensions and breaking loads for simple, duplex, and triplex chains and chain wheels, short pitch, with pitches from 0.315 to 8 in., and defines how long pitch chains are formed from the short pitch series. The dimensions are given for rotary tooth-form cutters for chain wheels, and for basic rack tooth shapes. Appendices give information on the cutting sizes and tolerances of chain wheels, on the turning dimensions for chain wheel blanks, on wheel centre distances, and on the pitch diameters of wheels of from 9 to 150 teeth.
- 229 : 1940** Flameproof enclosure of electrical apparatus for power and lighting plant. NZ SA
39pp. 2s. Amendment CF 7148, December 1940.
The apparatus covered by this part is intended to meet the requirements of the coal-mining industry in which the inflammable gas which may be present in the surrounding atmosphere is methane. It defines the performance required from the flameproof enclosure of electrical apparatus and prescribes those features of design and construction which are considered to be essential or desirable to secure reliability in service. Sketches are included to illustrate the basic principles. Tests are also dealt with, including a general description of the tests prescribed by the Ministry of Fuel and Power. This specification is not intended to apply in detail to such apparatus as bells and telephones and their accessories, but the same principles of construction are applicable.
- 230 : 1945** Portable photometers (visual type).
10pp. 2s.
The classes of photometers covered by this specification comprise those photometers intended for the measurement of illumination by visual comparison under conditions where portability and convenience in use are of more importance than great accuracy. Three types are specified, those intended for very low illumination (0.0005 to 0.5 f.c.) those for low illumination (0.01 to 10 f.c.) and those for medium and high illumination (0.2 to 200 f.c.). Definitions, constructional requirements and an Appendix referring to measurements involving large colour differences are included. This specification does not cover portable photometers of the photo-electric type (see B.S. 667).

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- 231 : 1936** Pressboard for electrical purposes (excluding 'built-up' pressboard) AS NZ
30pp. 2s. 'Temporarily out of print.
Four types, in thicknesses ranging from 10 mils. to $\frac{3}{8}$ in., are covered. A description of the types is followed by a specification of values of properties and their methods of testing, viz., density; electric strength (proof test); tensile strength; compression strength; shrinkage in oil; cohesion between layers; oil absorption; freedom from conducting particles; machinery tests; impregnation with bituminous compounds; and water content.
- 232 : 1938** Vitreous-enamelled steel reflectors for electric lighting (open dispersive type).
9pp. 2s. NZ
This covers nine sizes of standard reflectors, designated according to the nominal consumption of the lamps for which each is suitable. The wattage range covered is from 40 W to 1500 W. The specification gives requirements for the material, dimensions, test lamp, luminous output, distribution of light and angle of cut-out. Selection for testing of reflectors is also dealt with.
- 233 : 1932** Terms used in illumination and photometry, glossary of NZ
8pp. 2s. Amendment CD 5739, February 1935.
The terms and units are defined and symbols given.
- 234 : 1942** Ebonite for electrical purposes.†
9pp. 2s.
Quality of material and dimensions and tolerances of sheets, rods and tubes are stated, and cross-breaking strength tests, surface-leakage, electric-strength and power-loss tests specified. Forms and dimensions of test pieces and electrodes are given.
- 235 : 1927** Gear wheels and pinions for electric tramways.
Under Revision.
- 236 : 1941** Round strand and flattened strand steel wire ropes for colliery winding purposes.
31pp. 2s. Amendments CF 8994, October 1941; PD 345, March 1945; PD 412, October, 1945. NZ
Provides for round strand ropes or ordinary or Lang's lay of 6×7 , 6×7 outer, 6×8 outer, 6×9 outer, 6×10 outer, 6×11 outer, 6×19 , 6×27 and 6×37 constructions and for flattened strand ropes of 6×8 , 6×22 , 6×23 and 6×25 constructions. Ropes of special acid and acid qualities are specified of 1 to 8 in. circumferences made from wire ranging from 80 to 125 tons per sq. in. tensile breaking strength in steps of 10 tons per sq. in. Full testing requirements are included with rope breaking strengths.
- 238 : 1934** Well glass lighting fittings (60 watt non-flameproof) for use underground in collieries.
8pp. 2s.
Material and quality of fittings and lampholder and quality and dimensions of the well glass are specified. Earthing and attachment of cable armouring is described and dimensions of tungsten filament lamps are given.
- 239 : 1935** White pigments for paints.
26pp. 3s. 6d.
Including :
239. Genuine white lead. SA NZ*
254. Zinc oxide (types 1 and 2). SA NZ
Amendment CF 7221, December 1940.
296. Lithopone. SA NZ*
338. Antimony oxide SA NZ

† War emergency issue.

* With local amendments.

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392. Titanium dioxide SA NZ
636. Titanium white SA NZ
Amendment PD 65, January 1943, 2pp. 3d.
637. Basic sulphate of lead SA NZ
The composition, size of particle, and oil absorption for each type of pigment are specified. Methods are given for the comparison of colour and for the comparison of reducing power. Methods of test for stability of colour, and for the determination of zinc sulphide, in lithopone are included
- 240 : Part 1 : 1937 Brinell hardness, methods and tables for AS NZ SA
24pp. 2s.
This gives particulars of test specimens, loads and measuring apparatus for Brinell hardness testing. Tables containing hardness numbers for various ball diameters and loads are included. There is an Appendix on minimum thicknesses for test specimens.
- 240 : Part 2 : 1929 Hardness of steel balls for Brinell hardness testing. SA
7pp. 2s.
This specifies sizes and hardness of steel balls for use in Brinell hardness tests with tables giving hardness numbers for various loads in the diamond indentation test and reciprocal pressure test.
- 241 : 1935 White oil pastes for paints. NZ SA
15pp. 2s. Temporarily out of print.
Including :
241. Genuine white lead oil paste.
273. Zinc oxide oil paste.
297. Lithopone oil paste.
The compositions, colour and condition of each paste is specified together with requirements for oil content, water, skins and coarse particles and reducing power. Appendices include notes on sampling, standard sieve sizes and methods of test.
- 242 : 1936 Linseed oil for paints. NZ SA
19pp. 2s. Amendment CF 7218, December 1940.
Including :
242. Refined linseed oil.
243. Raw linseed oil.
259. Boiled linseed oil.
For each of the materials various physical requirements are specified such as colour, iodine value, saponification value, acidity, drying time, etc. Method of making the various determinations are given in Appendices.
- 243 : 1936 Included in B.S. 242. NZ
- 244 : 1936 Turpentine (types 1 and 2) and white spirit. NZ SA
15pp. 2s.
Including :
244. Turpentine, type 1.
Amendments CE 1776, November 1936 ; CF 7219, December 1940.
245. White spirit.
Amendment CF 7219, December 1940,
290. Turpentine, type 2.
Amendment CF 7219, December 1940.
Requirements for specific gravity, quality and various physical properties for the three materials are stated and methods of sampling, distillation, carrying out polymerisation tests, and volatility tests are given in the Appendices.

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245 : 1936 *Included in B.S. 244.*

NZ SA

248 : 1926 **Light rails and fishplates for use in mines.**

SA

31pp. 2s. Temporarily out of print.

Detailed dimensions are specified of bridge rails of 14, 16, 18 and 22 lb. weight per yard and of flat bottom rails of 14, 16, 18, 20, 22, 25, 28, 30 and 35 lb. weight per yard ; standard fish plates are included for the latter.

249 : 1940 **Brass bars (high speed screwing and turning).**

AS NZ

13pp. 2s. Amendments CF 6770, October 1940 ; PD 317, December 1944, superseding previous amendment.

Chemical composition and methods of manufacture and mechanical properties are specified. Margins of manufacture are given in a series of tables, for round and square bars and hexagon bars.

250 : 1940 **High tensile brass bars and sections (grades A and B).**

AS NZ

14pp. 2s. Amendment PD 317, December 1944, superseding previous amendment.

The two grades are defined and chemical composition and method of manufacture and mechanical properties are specified. Margins of manufacture are given in a series of tables, for round and square bars and hexagon bars.

251 : 1940 **Naval brass (admiralty mixture) bars and sections (suitable for machining and forging) and forgings.**

AS NZ

16pp. 2s. Amendment PD 318, December 1944, superseding previous amendment.

Part 1 refers to bars and sections, and covers : chemical composition, methods of manufacture and mechanical properties are specified ; tolerances on bar sizes for round and square bars and hexagon bars are also given. Part 2 refers to forgings, and covers quality of material, freedom from defects, and tensile testing. Part 3 gives general information on inspection and testing facilities. Metric equivalents of dimensions, etc., are given in separate tables.

252 : 1940 **Naval brass (special mixture) bars and sections (suitable for machining and forging) and forgings.**

AS NZ

15pp. 2s. Amendment PD 318, December 1944, superseding previous amendment.

The material to which this specification refers is not suitable for brazing. Part 1 refers to bars and sections, and covers : chemical composition, methods of manufacture and mechanical properties are specified. Tolerances on bar sizes for round and square bars and hexagon bars are tabulated. Part 2 refers to forgings and drop forgings and covers quality of material, freedom from defects, and tensile tests. Part 3 gives general information on inspection and testing facilities.

254 : 1935 *Included in B.S. 239.*

NZ* SA

255 : 1938 **Extenders for paints.**

NZ SA

21pp. 3s. 6d. Amendment CF 7220, December 1940.

Including :

255. Asbestine.

260. Barytes.

281. Blanc Fixe.

301. Silica.

The composition and quality of each of the materials are specified and content of coarse particles, oil absorption, colour, volatile matter and water-soluble matter are stated. Sampling and testing methods are given.

* With local amendments.

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256 : 1936 Varnishes. SA
27pp. 3s. 6d.

Including :

- 256. Interior oil varnish.
- 257. Exterior oil varnish.
- 258. Flattening or rubbing oil varnish.
- 274. Extra hard drying varnish.

The quality and colour of each type of the material is specified and drying time, volatile content, viscosity, flexibility and adhesion (for 256 and 257), flattening properties (for 258) and hardness (for 274) are stated. Test methods are given in the appendices.

257, 258 : 1936 *Included in B.S. 256.*

259 : 1936 *Included in B.S. 242.* NZ

260 : 1938 *Included in B.S. 255.*

261 : 1936 Ready mixed paints (oil gloss). SA
27pp. 3s. 6d. Amendments CF 3991, October 1939 (in respect of B.S. 294 only) ;
CF 7223, December 1940.

Including :

- 261. White (white lead base).
- 262. Tinted (white lead base).
- 277. White (zinc oxide base).
- 278. Tinted (zinc oxide base).
- 293. Green.
- 294. Black.
- 295. Red oxide of iron.
- 371. Purple brown oxide of iron.

The composition and weight per gallon for each type of paint are stated and drying time, colour and consistency, fastness to light and water content are embodied in general clauses. Sampling and testing methods are described. The test requirements are stated in tables for the various types and grades.

262 : 1936 *Included in B.S. 261.*

263 : 1931 Brazing solder (grades AA, A and B).
7pp. 2s. Amendment PD 55, December 1942.

The composition of the material is specified, the form or grain size to be stated by purchaser. A table of grain sizes and sieve dimensions is given.

264 : 1926 Hot rolled yellow metal plates, sheet and strip (excluding condenser plates and ships' sheathing).
5pp. 2s.

Composition of the material is stated, tolerances and test requirements for tensile and bend tests are given and provision of test pieces and testing facilities specified.

265 : 1936 Cold rolled brass sheets, strip and foil, copper content 61·5 per cent minimum and under 64 per cent maximum. AS NZ SA
15pp. 2s.

Composition (including impurities) is specified and treatment (annealing) stated. Tensile- and hardness-test requirements and bend-test requirements are prescribed and conditions for sampling and inspection are stated. Tolerances in dimensions are given in tables.

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- 266 : 1936** Cold rolled brass sheets, strip and foil, copper content 64 per cent minimum, 67 per cent maximum. AS NZ SA
15pp. 2s.

Composition (including impurities) is specified and treatment (annealing) stated. Tensile- and hardness-test requirements and conditions for testing, sampling and inspection are stated. Tolerances in dimensions are given in tables.

- 267 : 1936** Cold rolled brass sheets, strip and foil, copper content within range 68 per cent minimum and 72 per cent maximum. AS NZ SA
15pp. 2s.

Composition (including impurities) is specified and treatment (annealing) stated. Tensile- and hardness-test requirements and conditions for testing, sampling and inspection are given. Tolerances in dimensions are tabulated.

- 268 : 1926** Switchgear cells and cubicles constructed of concrete and moulded stone. 7pp. 2s. AS NZ SA

Composition and preparation of concrete is specified and transverse strength of slabs is stated. Method of testing is described and notes on design of slab-work cubicles and cubicles constructed in place are given.

- 269 : 1927** Methods of declaring efficiency of electrical machinery (excluding traction motors), rules for NZ
26pp. 2s. Amendment CC 6301, February 1928. Temporarily out of print.

This specification provides a standard method of predicting and declaring the efficiency of a machine so that the result shall correspond closely with the true efficiency which might be determined eventually on the completed machine. Schedules are given for D.C. motors and generators : polyphase induction motors and induction generators : polyphase synchronous motors and generators : transformers : rotary convertors, and motor convertors.

- 270 : 1930** Electric motors and generators for mines. 51pp. 2s. Amendments CD 4516, November 1934 ; CE 3514, April 1937.

Definitions of flameproof constructions are given with requirements for electrical performance and type tests with notes on continuous and short time ratings, insulating materials, and, in Part 5, technical information on problems of flame-proof enclosure is added. Part 3 deals with requirements in places where flame-proof enclosure is not specified.

- 271 : 1941** Capacitors for radio receivers.† NZ SA
10pp. 2s.

This specification deals with the rating, dimensions, testing and construction of electrolytic capacitors and tubular paper capacitors, and the method of marking all fixed capacitors of small size, as used in radio receivers. A standard colour code is included.

- 272 : 1936** Red oxides of iron (natural, manufactured, and blended) for paints. 19pp. 2s. Amendment CF 7225, December 1940.

Including :

272. Natural red oxides of iron (grades A and B). NZ*

305. Manufactured red oxides of iron (excluding venetian red). NZ*

Type 1. Indian and Turkey reds.

Type 2. Other manufactured oxides.

694. Blended red oxides of iron. NZ

In each case, the material and its types are specified, together with chemical composition, matter soluble in ether, content of coarse particles, oil absorption, colour, staining power, volatile matter, matter soluble in water, and content of carbonates and sulphates. Sampling technique and methods of carrying out the appropriate determinations are described in the Appendices.

* With local amendments. † War emergency issue.

B.S.

273 : 1935 *Included in B.S. 241.*

NZ : SA

274 : 1936 *Included in B.S. 256.*

275 : 1927 **Dimensions of rivets ($\frac{1}{2}$ in. to $1\frac{5}{4}$ in. diameter).**

NZ

10pp. 2s. Amendment CF 7851, April 1941.

This specification consists of tables giving the standard diameters of rivets (with manufacturing tolerances on the shanks) in both British and metric sizes. Diagrams illustrate standard shapes and sizes of pan head, snap head, and various shapes of countersunk head, rivets.

The specification does not apply to boiler rivets.

276 : 1927 **Contours for locomotive tyres for British railways (4 ft. $8\frac{1}{2}$ in. gauge).**

10pp. 2s.

Contours for three different types of flanges are given in full size with recommendations as to which type should be used for various wheels, e.g., leading, trailing coupled or bogie wheels.

277, 278 : 1936 *Included in B.S. 261.*

279 : 1932 **Flame-proof type plug and socket, heavy duty.**

AS* SA

22pp. 2s.

This specification applies to plugs and sockets intended primarily for use with coal-cutting machines and the like portable apparatus in mines. It deals only with the dimensions necessary to secure interchangeability between plug and socket and with certain electrical and mechanical requirements : it does not specify a fully detailed design. The enclosure must conform with the requirements of the British Standard definition of flameproof enclosure, as in B.S. 229.

280 : 1928 **Field rheostats for electric generators, motors, synchronous converters and balancers.**

NZ

14pp. 2s. Temporarily out of print.

The various types of rheostats and enclosures, rating and marking methods of operation and of mounting, design and construction are specified, comparative limits and grading are stated and dielectric and performance tests indicated. Information to be supplied to the makers is specified.

281 : 1938 *Included in B.S. 255.*

282 : 1938 **Lead chromes and zinc chromes for paints.**

NZ

17pp. 2s. Amendment CF 7226, December 1940.

Including :

282. Lead chromes.

389. Zinc chromes.

These specifications cover : description and composition of the material ; content of coarse particles ; oil absorption ; colour ; stability of colour (lead chromes) ; staining power ; volatile matter ; matter soluble in water (lead chromes). Sampling technique and methods of carrying out the appropriate determinations are described in the Appendices.

283 : 1938 **Prussian blue for paints.**

NZ

13pp. 2s.

This specification describes the material and its composition and includes requirements for such properties as coarse particles, oil absorption, comparison of colour and of staining power. Methods are included for the determination of basic iron, iron cyanogen complex and the other properties specified.

* With local amendments.

B.S.

- 284 : 1937** Black (carbon) pigments for paints NZ
23pp. 3s. 6d. Amendment CF 7224, December 1940.
Including :
284. Carbon black.
285. Bone black.
286. Vegetable black.
287. Lamp black.
288. Mineral black.
These specifications cover, in each case : description of material ; content of coarse particles ; oil absorption ; colour ; staining power ; matter volatile at 100°C. (98°C. to 102°C.) ; ash ; ether extract ; matter soluble in water. Sampling technique and methods of carrying out the appropriate determinations are described in the Appendices.
- 285, 286, 287, 288 : 1936** *Included in B.S. 284.*
- 290 : 1936** *Included in B.S. 244.* [NZ SA
- 291 : 1927** Material for colliery tub drawbars, shackles and couplings.
30pp. 2s. Amendments CD 3204, May 1934 ; CF 9643, February 1942 ; CF 9722, March 1942 ; PD 7, July 1942, 6pp. 6d.
Specifications are included for mild steel, dead soft steel and two grades of wrought iron. A specification for 1.5 per cent manganese steel is included in an addendum.
- 292 : 1927** Ball bearings and parallel-roller bearings, dimensions of SA
53pp. 2s. Amendment CC 9975, April 1933. Temporarily out of print.
Permissible errors due to wobble and eccentricity, and dimensional tolerances, for the various types of bearings are tabulated, and a series of tables give the overall dimensions of twenty-five types of journal and single- and double-thrust bearings. A standard nomenclature for the component parts of bearings is included, together with the British Standard reference symbols for each type and size of bearing.
- 293, 294, 295 : 1936** *Included in B.S. 261.*
- 296 : 1935** *Included in B.S. 239.* SA
- 297 : 1935** *Included in B.S. 241.* NZ SA
- 301 : 1938** *Included in B.S. 255.*
- 302 : 1938** Round strand steel wire ropes for cranes. NZ
35pp. 2s. Amendment CF 8996, November 1941
Provides for round strand wire ropes of ordinary or Lang's lay of 4×37, 6×19, 6×24, 6×37 and 6×61 constructions for the lifting and derricking ropes of cranes and similar lifting appliances. Ropes of Special acid and acid qualities are specified of from ¾ to 8 in. circumference made from wire ranging from 80 to 120 tons per sq. in. tensile breaking strength in steps of 10 tons per sq. in. Full testing requirements are included with rope breaking strengths.
- 303 : 1938** Green pigments for paints. NZ
15pp. 2s. Amendments CF 7217, December 1940 ; PD 30, August 1942 to 303.
Including :
303 : 1938 Brunswick or chrome greens (pure and reduced).
318 : 1938 Green oxide of chromium.
A pure and reduced quality of Brunswick or chrome green are covered. The requirements in both specifications include description of the pigment, its chemical composition, colour, staining power and oil absorption and limits for the amount of coarse particles, volatile matter and matter soluble in water.

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305 : 1936 *Included in B.S. 272.*

306 : 1937 **Black and purple oxides of iron for paints.**
16pp. 2s.

NZ

Including :

306. Black oxide of iron.

339. Purple oxides of iron

The material is described and its composition specified, together with requirements for freedom from coarse particles, oil absorption, colour, staining power, volatile matter, and matter soluble in water. In the case of purple oxides, the content of carbonates and of sulphur and sulphur compounds is also specified. Sampling technique and the methods of carrying out the various tests are given in Appendices.

307 : 1931 **Street lighting.**

26pp. 2s. Under revision.

308 : 1943 **Engineering drawing office practice, recommendations for British Standard**
51pp. 6 plates. 3s. 6d.

Includes sizes and typical layouts of drawing sheets and methods of planning and numbering series of drawings. Recommended scales, types of lines, methods of projection, lettering, dimensioning and sectioning are specified, followed by standard machining and surface finish symbols, and the representation of screw threads. References to B.S. bolts, rivets and welding symbols, notes on structural steelwork, a list of abbreviations and methods of preparing graphs complete the numbered clauses, while reproduction, preparation, storage, material and general engineering specifications, and the use of symbols provide the headings for five Appendices.

309 : 1927 **White heart malleable iron castings.**

7pp. 2s. Amendments CC 4185, May 1931 ; CF 9310, March 1942.

The specification provides for test bars for testing castings. Tensile and bend tests are specified and when appropriate a pressure test on the casting.

310 : 1927 **Black heart malleable iron castings.**

7pp. 2s. Amendments CC 4186, May 1931 ; CF 9311, March 1942.

The specification provides for test bars for the purpose of testing the castings they represent. Tensile and bend tests are specified and when appropriate a pressure test on the casting.

311 : 1936 **Gold size for paints.**

NZ SA

12pp. 2s.

The quality is specified and drying time, volatile content, viscosity, behaviour with white lead paste, keeping qualities and sampling are stated. Methods of determining the properties are described in Appendices.

312 : 1937 **Earth colours for paints.**

NZ SA

21pp. 3s. 6d. Amendment CF 7222, December 1940 (in respect of B.S. 337).

Including :

312. Natural sienna (raw and burnt).

313. Natural umber (raw and burnt).

319. Vandyke brown.

337. Ochre.

The material is described and its composition specified, together with requirements for freedom from coarse particles, oil absorption, colour, staining power, volatile matter, and matter soluble in water. Sampling technique and the methods of carrying out the various tests are given in Appendices.

313 : 1937 *Included in B.S. 312.*

NZ SA

B.S.

- 314 : 1938 Ultramarine blue for paints.** NZ
13pp. 2s.
The material is described, and requirements given for freedom from coarse particles, oil absorption, colour, staining power, volatile matter and matter soluble in water. Sampling technique and the methods of carrying out the various tests are given in Appendices.
- 316 : 1929 Synthetic-resin varnish-paper boards and tubes for general electrical purposes.**
29pp. 2s. Amendment PD 192, November 1943.
This specification refers to boards up to and including $\frac{1}{2}$ in. thick and circular tubes up to a wall-thickness of $\frac{1}{4}$ in. only, of grade II material as defined. It covers : finish ; tolerance on dimensions ; density ; electrical properties ; tensile and shearing strengths (of boards) ; compression strength ; cohesion between layers ; water absorption ; effect of hot oil ; and machining tests. Testing technique is described in a series of Appendices.
- 318 : 1938** *Included in B.S. 303.*
- 319 : 1937** *Included in B.S. 312.* NZ SA
- 320 : 1938 Vermilion and red pigment for paints.** NZ
18pp. 2s. Amendment PD 29, August 1942 (in respect of B.S. 333).
Including :
320. Vermilion for paints.
333. Red pigment (red lakes, toner or pigment dyestuff).
The material is described, and its composition specified, together with requirements for freedom from coarse particles, oil absorption, colour, staining power, ash (for vermillion), volatile matter, matter soluble in water, and 'bleeding' test and stability of colour (for red pigment). Sampling technique and the methods of carrying out the various tests are given in Appendices.
- 321 : 1938 General grey iron castings (grades A and C).** NZ
13pp. 2s.
This specifies the process of manufacture, chemical composition, moulding, details of test bars, and mechanical tests. A table of factors for converting actual breaking loads into equivalent breaking loads on bars of standard diameter is given.
- 322 : 1928 Quality of the material for colliery cage main shackles and bridle chains.** SA
16pp. 2s. Amendment CC 5120, October 1931.
Includes specifications for two grades of wrought iron for use in the manufacture of colliery cage shackles and chains.
- 323 : 1928 Quality of the material for colliery rope capels or sockets for use in hauling or winding men.**
22pp. 2s. Temporarily out of print.
Includes specifications for dead soft steel and two grades of wrought iron for use in the manufacture of colliery wire rope sockets.
- 324 : 1934 Translucent (diffusing) glassware illumination fittings for interior lighting.** NZ
11pp. 2s.
This specification covers both electric and gas fittings. Definitions are given, and requirements are specified under the following heads : rating and dimensions ; thermal endurance ; brightness ; non-visibility of light source ; minimum mean thickness ; and light output ratio of the glassware. Methods of carrying out the appropriate tests are described.
- 325 : 1928 Black, iron and steel, cap and countersunk bolt-heads, nuts and washers, dimensions of**
4pp. 2s. Amendment CF 6810, October 1940. Temporarily out of print.
The dimensions are given for square neck, oval neck, and nibbed cup head bolts,

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for nibbed, and square neck countersunk head bolts, and for hexagon and square nuts of nominal diameters from $\frac{1}{4}$ in. to 1 in. Dimensions are also given for flat and taper washers with round and square holes.

- 326 : 1941 Electrical performance of high-tension transformers for x-ray purposes.**
15pp. 2s.

This specification refers to the main high-tension transformer. Classes of rating, limits of temperature rise, high voltage tests, performance and type tests, and the information to be given on the rating plate are specified. Notes on service conditions, calculation of inherent voltage regulation at different loads and electrical performance of complete high tension generators are included.

- 327 : Part 1 : 1934 Derrick cranes (power-driven).** SA
37pp. 2s. Amendments CD 3179, May 1934 ; CF 9708, March 1942.

Covers Scotch derrick, guy derrick and tower derrick cranes and is specified in the Building Amendment Regulations, 1931. Detailed requirements for the design of the crane structure and moving parts (including minimum factors of safety) are specified, and hoisting equipment and brakes, power unit and controls are dealt with. Qualities of material are stipulated for all important parts, together with requirements as to the performance testing of the completed crane.

- 327 : Part 2 : 1933 Derrick cranes (hand-operated).** SA
33pp. 2s. Amendment CF 9706, March 1942.

Similar in function and scope to 327 Part 1 (q.v.).

- 328 : 1928 Twist and straight flute drills.** AS NZ
31pp. 2s. Amendments CC 7944, September 1932 ; PD 173, October 1943.

Drawings and descriptions are given of twelve types of drills. Finish, tolerances, marking and test requirements are specified and tables of dimensions are given for drills from No. 80 wire (0.0135 in.) to 2 in. diameter. The dimensions of Morse taper shanks Nos. 1 to 7 are included.

- 329 : 1939 Round strand steel wire ropes for lifts and hoists.** NZ
34pp. 2s.

Provides for round strand wire ropes of Lang's or ordinary lay of 6×12 and from 6×19 , 6×19 scale and 6×24 constructions for use with cage or platform lifts or hoists working in guides. Ropes of special acid and acid qualities are specified of from $\frac{3}{4}$ to 3 in. circumference made from wire ranging from 80 to 120 tons per sq. in. tensile breaking strength in steps of 10 tons per sq. in. Full testing requirements are included with rope breaking strengths.

- 330 : 1941 Round strand and flattened strand steel wire ropes for colliery haulage purposes.**
31pp. 2s. Amendments CF 8995, October 1941 ; CF 9651, March 1942 ; PD 346, March 1945 ; PD 411, October 1945. NZ

Provides for ropes of special acid, acid and basic qualities made from wire of 80 to 90, 90 to 100, 100 to 110, 110 to 120 and 115 to 125 tons per sq. in. ultimate tensile strength. Sizes are included for flattened strand ropes from 1 to 7 in circumference and round strand ropes from $\frac{3}{4}$ to $6\frac{1}{4}$ in. circumference. The constructions of ropes provided for are as follows :

Round strand : 5×6 , 5×7 , 6×6 , 6×7 , 6×7 outer, 6×8 outer, 6×9 outer, 6×10 outer and 6×11 outer.

Flattened strand : 6×8 , 6×22 , 6×23 , 6×25 .

The specification is in similar form to B.S. 236 (q.v.).

- 331 : 1938 Driers for paints.** NZ* SA
17pp. 2s.

Including :

331. Paste driers.

332. Liquid driers.

* With local amendments.

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The specification for paste driers covers consistency and composition, colour, skin and coarse particles, water and oil content, keeping properties and sampling. In the case of liquid driers, volatile content, colour, flash point, dilution, mixing and drying properties, keeping properties and sampling are specified. The methods of testing these properties are described.

332 : 1938 *Included in B.S. 331.*

333 : 1938 *Included in B.S. 320.*

SA

334 : 1934 **Chemical lead (types A and B).**

SA

23pp. 2s. Memorandum CG 349, May 1942.

For type A the chemical composition is detailed and methods of analysis described, in the case of type B the composition shall be agreed between manufacturer and purchaser. A flash test is prescribed in both cases, and an aqua regia test for type A is described in detail. Full details of carrying out the tests and making a chemical analysis are given in appendices.

335 : 1928 **Regulus metal.**

SA

9pp. 2s.

This covers the chemical composition of 3 grades of a lead-antimony metal suitable for acid pumps, plugs, pans, etc. Tests prescribed include Brinell, tensile, and bending tests. Particulars of methods of chemical analysis are included in an Appendix.

336 : 1936 **Fire hose couplings (including screwed outlets for hydrants), suction hose couplings, and branch pipes and nozzle connections.**

27pp. 2s.

The primary object of this specification is to secure interchangeability between the various couplings and connections used for fire and suction hose purposes. Standard sizes and tolerances have accordingly been laid down for the screw threads concerned. In addition, information is given as to the general dimensions of the components. The specification covers V (Whitworth) thread, and round thread couplings of 2¼, 2½ and 2¾ in. nominal size, instantaneous couplings of 2½ in. nominal size, and seven sizes of suction hose couplings from 3 in. to 6 in. nominal size. The threads for branch pipes and nozzle connections, and for hydrant outlets are also specified.

337 : 1937 *Included in B.S. 312.*

NZ SA

338 : 1935 *Included in B.S. 239.*

NZ SA

339 : 1937 *Included in B.S. 306.*

NZ

340 : 1936 **Pre-cast concrete kerbs, channels and quadrants.**

SA

13pp. 2s. Amendment CE 9371, October 1938.

This specification states the requirements for the cement and aggregate, and prescribes the colour, moulding, dimensions and testing of the kerbs. Methods of test for transverse strength and absorption of water are given.

341 : 1945 **Valve fittings for compressed gas cylinders.**

22pp. 2s.

This specification includes schedules giving the essential mechanical properties of steel, bronze and brass for the manufacture of gas cylinder valves.

Full details are given of the thread dimensions for three sizes of valve stems and for outlet threads for practically all of the gases in general use. Complete details are given of the inspection gauges for the taper threads on the valve stems and for the necks of the gas cylinders.

The specification also includes particulars of a safety release device for carbon dioxide cylinders and a schedule of dimensions for valving capsules.

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- 347 : 1928 Asphalt macadam (penetration method).** SA
9pp. 2s. Amendment CC 1659, July 1930. Temporarily out of print.
Various asphalt terms are defined, and materials associated with these in road making are described and also the processes of laying, applying matrix, jointing, and seal coating. The appendix contains particulars of the penetrometer needle used for testing for consistency.
- 348 : 1945 Compressed natural rock asphalt.**
8pp. 2s.
Various asphalt terms are defined and the composition, laying, jointing and surface finishing of the material are described.
- 349 : 1932 Identification colours for gas cylinders.** NZ
6pp. 2s. Amendments CE 7034, March 1938, incorporating previous addendum ; CF 9295, January 1942.
This specification covers a colour code for identifying upwards of 20 different gases. Table 1 dealing with commercially used gases and table 2 with those for medical purposes.
- 349C : — Wall chart of identification colours for gas cylinders.** NZ
3s. 6d. Temporarily out of print.
This chart, 23½ in. × 17½ in., gives coloured illustrations of the various gas cylinders dealt with in B.S. 349 (see above).
- 350 : 1944 Conversion factors and tables.**
96pp. 3s. 6d.
Conversion factors and tables, is divided into five parts containing respectively basic tables and definitions, conversion factors, simple multiples of conversion factors, conversion tables with a general range of 1 to 100 units, and conversion tables in common use with a range of 1 to 1000 units. The factors and tables comprise linear, square and cubic measures, measures of capacity, weights, speeds, stresses and pressures, weight per unit length, densities, concentrations, forces, moments, moments of inertia, work, heat, energy, power, and angular measures. There are also temperature conversion tables and gauge sizes expressed in decimals of an inch and in millimetres.
- 351 : 1944 Friction surface rubber transmission belting.†**
12pp. 2s. Amendment PD 365, June 1945.
Supersedes B.S. 351 : 1929 for the duration of the period of emergency caused by the acute rubber shortage resulting from the war. It is based on the Rubber Control Order No. 16. It provides, as before, for belting for type A high speed drives running in excess of 3500 ft./min. over a pulley of a size not exceeding 1 in. dia. per ply for belts up to 4 ply and 1½ in. dia. per ply for belts over 4 ply. And type B, any other service. Tolerances on widths are specified and tests are included for elongation, strength of fabric and adhesion. Information is given as to the service conditions which are recommended.
- 352 : 1929 Phosphor bronze turbine blading.**
8pp. 2s.
Quality of material, chemical composition, methods of manufacture, provision of test pieces and mechanical tests are specified.
- 353 : 1929 Testing of hydraulic turbines.** SA
12pp. 2s. Turkish translation 2s.
The conditions of head, speed and output for acceptance tests are given and test requirements stated. Measurement of effective head is described for reaction and impulse turbines and Pelton wheels. Some methods of measuring rate of flow are enumerated. Information required with enquiry or order is given.

† War emergency issue.

B.S.

354 : 1945 Photometric integrators.

8pp. 2s.

Provides for an integrator suitable for the measurement of tungsten filament electric lamps, tubular fluorescent and other tubular lamps, and for translucent glassware fittings as specified in B.S. 324 and dispersive reflector fittings as specified in B.S. 232. It specifies the form of integrator, the size, the window, position of test lamp and screens and the painting of the internal surface.

355 : 1939 Mining-type transformers.

NZ

18pp. 2s. Amendment PD 297, October 1944.

Part 1 covers general rules, voltages and connections, tappings, protection and earthing. Part 2 refers to transformers for use below ground and concerns size, tank and tank fittings, terminals and cable connections, requirements for flameproof transformers and intrinsically safe signalling. Part 3 deals with transformers for use above ground. Details of cable sealing boxes are given in Appendix A, information to be given with enquiry set out in B.

356 : 1929 Brass armouring wire for electric cables.

5pp. 2s.

The quality and composition of the material is specified and the dimensions are given. Elongation and bend tests are prescribed together with details relating to the number of tests to be taken.

357 : 1930 Travelling jib cranes (contractor's type).

SA

29pp. 2s. Amendment CF 9243, December 1941.

Covers both hand- and steam- or electrically-driven cranes. Detailed requirements for the design of the crane structure and moving parts including minimum factors of safety are specified and hoisting equipment and brakes, power unit and controls are dealt with. Qualities of material are stipulated for all important parts together with requirements as to the performance testing of the completed crane.

358 : 1939 Measurement of voltage with sphere-gaps, rules for the

43pp. 2s. Amendment PD 224, March 1944.

This deals with the technique of the sphere-gap method of voltage measurement, and gives data for the voltage range from 2.5 kV up to about 2½ million volts. Amongst the matters discussed are sizes, mounting, surface and conditioning of spheres, correction for air density, and effect of atmospheric humidity. Tables of sphere-gap breakdown voltages in kilovolts (peak) in air, and line diagrams for sphere-gap voltage measurement are given.

359 : 1929 98 per cent aluminium—(1) Notched bars and ingots (for re-melting purposes); (2) Rolling slabs and billets.

6pp. 2s.

The chemical composition is specified together with requirements relating to freedom from defects. The method of taking samples for analysis is given.

360 : 1929 99 per cent aluminium notched bars and ingots (for re-melting purposes).

6pp. 2s.

The chemical composition is specified together with requirements relating to freedom from defects. The method of sampling for analysis is given.

361 : 1929 7 per cent copper aluminium alloy castings for general engineering purposes.

7pp. 2s.

This specification covers the quality of the constituent aluminium and copper, and the chemical composition of the alloy ; also, the dimensions, margins of manufacture and quality (freedom from defects) of the castings. The latter shall comply with a tensile test and an hydraulic test. Provision of test samples, markings, inspection, and testing facilities are also dealt with.

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- 362 : 1929 12 per cent copper aluminium alloy castings for general engineering purposes.**
7pp. 2s.

This specification covers the quality of the constituent aluminium and copper, and the chemical composition of the alloy ; also, the dimensions, margins of manufacture and quality (freedom from defects) of the castings. The latter shall comply with a tensile test and an hydraulic test. Provision of test samples, markings, inspection, and testing facilities are also dealt with.

- 363 : 1929 Zinc-copper aluminium alloy castings (suitable for crank cases and general use).**
7pp. 2s.

This specification deals with chemical composition, limits on dimensions, provision of test samples, mechanical tests, and marking of material. The quality of the materials used in the production of the alloy shall be in accordance with the relevant B.S. specifications for aluminium, copper and zinc.

- 364 : 1934 Neck and flange dimensions of illumination glassware and carriers.**
12pp. 2s.

This specification applies to both electric light and gas fittings. The neck dimensions for glassware and galleries, and sizes of flanges and supporting rings for bowl fittings are set out.

- 365 : 1942 Round strand galvanised steel wire ropes for shipping purposes.** NZ
12pp. 2s.

Provides for standing and rigging ropes, hawsers, mooring and towing ropes and cargo gear, ropes made from wire of 25 to 35, 45 to 55 and 80 to 95 tons per sq. in. ultimate tensile strength. Sizes are included from 1 to 8 in. circumference and 6×7 , 6×12 , 6×24 and 6×30 constructions are specified. The specification is in similar form to B.S. 236 (q.v.)

- 366 : 1929 Round strand steel wire ropes for oil wells.**
33pp. 2s. Amendment CC 8779, December 1932.

Deals with drilling and other ropes of special acid, acid and basic qualities made from wire of 70 to 80, 80 to 90, 90 to 100, 100 to 110, 110 to 120 and 115 to 125 tons per sq. in. ultimate tensile strength. Sizes are included from $\frac{3}{8}$ to $1\frac{1}{2}$ in. dia., and the specification provides for 6×7 , 6×12 (9×3), 6×19 , 6×19 Filler, 6×19 Warrington, 6×27 and 6×37 constructions. The specification is in similar form to B.S. 236 (q.v.).

- 367 : 1941 Performance of ceiling-type electric fans and speed regulators for use therewith.** SA
24pp. 2s.

This applies to ceiling fans of the propeller type and is limited to those of blade sweeps 24 to 60 in. (corresponding max. r.p.m. 500 to 220) and for standard voltages AC or DC 100 to 250V. For AC the standard is single phase 50 cyc. Definitions of special terms used are included and various particulars, e.g., type of motor, class of insulation, suspension system, range of speed, starting, silence, and limits of temperature rise are prescribed with tolerances. Methods of determining the appropriate air-flow values are described and illustrated with a typical air velocity curve.

- 368 : 1936 Pre-cast concrete flags in portland cement.** SA
13pp. 2s.

Particulars regarding the cement and aggregate are specified, and colour, moulding, and dimensions of the flags are prescribed. Tests for transverse strength, rate of wear, and absorption of water are specified. The methods of making the tests are described.

- 369 : 1940 Phosphor bronze bars and rods for general purposes.** AS
15pp. 2s.

The quality, chemical composition, methods of manufacture and tensile-test requirements are specified. Number and form of test pieces are given and margins of manufacture tabulated.

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- 370 : 1938 Venetian red for paints.** NZ SA
13pp. 2s.
The material is described, and its composition specified, together with requirements for coarse particles, oil absorption, colour, staining power, volatile matter, and acidity and alkalinity. Sampling technique and the methods of carrying out the various tests are given in the Appendices.
- 371 : 1936** *Included in B.S. 261.*
- 372 : 1930 Side-entry wall plugs and sockets for domestic purposes 2-pole.** SA
For 3-pole plugs and sockets see B.S. 546.
29pp. 2s. Amendments CC 9440, March 1933 ; CD 3118, April 1934 ; CE 9577, October 1938 ; CG 409, May 1942. Temporarily out of print.
This covers two-pin plugs and sockets (without earthing connections) for ratings to 30A, superseding Part 1 of B.S. 73, Part 2 of which dealt with 3-pin plugs and has been superseded by B.S. 546 : 1934. Full specifications are given for the dimensions, materials and methods to be used. Current breaking capacity is dealt with.
- 373 : 1938 Testing small clear specimens of timber, methods of**
29pp. 2s.
This deals with the testing of timber for the measurement of engineering properties which are required in the design of wooden structures. The tests are fully described and illustrated with diagrams. The tests recommended to indicate the suitability of timber for specific uses are stated.
- 374 : 1930 Nickel-copper (cupro-nickel) sheets and strips.**
7pp. 2s.
The quality and composition of the material is stated and chemical and mechanical tests are specified. Dimensions and tolerances are given in tables.
- 375 : 1930 Refined nickel (grade A).** SA
4pp. 2s. Temporarily out of print.
The chemical composition is specified. The conditions for a chemical test, and sampling technique, are also laid down.
- 376 : ——— Railway signalling symbols.**
376 : Part 1 : 1937 Schematic symbols.
46pp. 2s.
This comprises an exhaustive list of symbols in 7 sections, e.g., signals, points, track details, etc., each symbol being identified by a reference number. These are for use in general plans and symbols for actual apparatus in detail and for wiring diagrams will be found in B.S. 376, Part 2. An alphabetical index is included.
376 : Part 2 : 1933 Wiring symbols and written circuits.
79pp. 2s. Temporarily out of print.
First gives notes and recommendations on the nomenclature for wiring diagrams, written circuits and the labelling of wires. A series of plates then gives the standard symbols. In each instance, those suitable for the wiring diagram and for the written circuit are printed side by side ; in addition, the recommended nomenclature is shown opposite to each symbol.
- 378 : 1941 Brass tubes, tubes for screwed glands and screwed glands for condensers.**
7pp. 2s. SA NZ
The quality and chemical composition of the material is specified and dimensions of tubes and glands are given. Hydraulic and heating tests are described.
- 379 : 1930 Components of optical projection apparatus, dimensions for**
10pp. 2s.
The dimensions given are primarily intended for optical projection apparatus suitable for use with lantern slides of $3\frac{1}{4}$ in. \times $3\frac{1}{4}$ in. It covers : diameters of

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condenser lens, mount and housing tube ; height of optical centre ; focal length of objective lens ; diameter of objective cylinder and jacket ; dimensions of flange ; and lantern tray and slide carrier.

380 : 1930 Performance of desk-type electric fans (small-diameter, high speed propeller type).

16pp. 2s.

This applies to desk-type fans of blade sweeps up to 16 in. and speeds not greater than 1350 r.p.m. for 16 in. and 2000 r.p.m. for the smaller (10 in.) size but does not cover complete specification for the motor regulators or blades. Definitions of special terms used are included. Clauses on rating requirements, speed regulation, starting capability, and limits of temperature rise are given. A method of determining air delivery is described and an example of tabulation of results of tests appears in an appendix.

381 : 1930 British Standard schedule of colours for ready-mixed paints.

Under revision. Temporarily out of print.

This comprises a schedule of 65 colours identified by number and illustrated in colour on glossy surfaces. Colour quality is defined and a formula given together with colorimetric values for each colour. A sample of the celluloid used in preparation of the patterns is included with details of its quality.

381C : 1944 British Standard colour card for ready mixed paints.

4pp. 1s.

The colour card includes 41 colour specimens each approximately 1 1/4 in. by 5/8 in. Twenty-seven of these are colours which can be used in producing paints for general purposes and building decoration. Six are special colours for the painting of public service vehicles and eight are colours included specifically for identification marking. The shade values for the colours for general purposes and building decoration are given.

381WD : 1945 Flat colours for wall decoration.

3pp. 6d.

This card provides for 10 standard colours for distempers and flat colours for wall decoration. The specimens are approximately 1 1/2 in. by 5/8 in. and the names associated with them correspond to the nearest colour in the dictionary of standard colours of the British Colour Council.

Specimens of each colour, approximately 6 in. by 4 in. are also available, price 6d. each.

382 to 383 : 1940 Bronze (gun-metal) ingots and castings for general engineering purposes.

10pp. 2s. Memorandum PD 1, July 1942.

AS NZ

382. 88/10/2 Bronze (gun-metal) ingots.

383. 88/10/2 Bronze (gun-metal) sand and chilled castings.

Each specification details the chemical composition of the material and the mechanical properties of a testbar. A porosity test may also be carried out on the castings.

384 : 1941 Hard drawn phosphor bronze wire.

NZ

8pp. 2s.

The chemical composition, tolerances on size and tensile, and bend tests requirement for wire for general purposes are specified.

385 : 1930 Pure aluminium tubes for general engineering purposes.

7pp. 2s.

The quality and composition of the material is stated and the dimensions given. Tensile and crushing-test requirements are specified and a table of approximate gauges is given.

B.S.

- 386 : 1930** Pure aluminium bars and sections for general engineering purposes (excluding wire bars).
6pp. 2s.

The quality and composition of the material is stated and methods of manufacture specified. Dimensions of bars and sections, with tolerances, are given and mechanical tests described.

- 387 : 1930** The attachment and drive of circular metal cutting saws (for cold working.)
9pp. 2s. AS NZ
Dimensions and tolerances are given in tables illustrated by diagrams, for saw diameters from 10 in. to 60 in. with hole diameters from $1\frac{3}{8}$ in. to $5\frac{1}{4}$ in. The loose flange type of drive is prescribed.

- 388 : 1938** Aluminium (powder and paste) for paints. NZ
14pp. 2s. Amendment CF 7227, December 1940. Temporarily out of print.
Powder and paste are dealt with separately. In each case the material is described and its composition specified, together with : contents of copper and grease ; settling properties ; colour, opacity, finish and brightness ; and volatile matter (for powder only). Sampling technique and the methods of carrying out the various tests are given in the Appendices.

- 389 : 1938** *Included in B.S. 282.* NZ

- 390 : 1938** Oil pastes (excluding white lead, zinc oxide and lithopone) for paints. NZ
16pp. 2s.
This specification applies to tinted oil pastes (i.e. excluding white pastes) prepared from any single pigment or from a mixture of such pigments. Details of composition, colour, condition, oil content, etc., are prescribed and appendices contain particulars of methods to be used in sampling and testing

- 391 : 1936** Tung oil, type F, for paints. NZ SA*
25pp. 2s. Amendment CF 7228, December 1940.
The quality of the material is specified by limiting requirements for Moisture content, colour, specific gravity, refractive index, iodine value, saponification, acidity, heat test and insoluble bromide test. Methods of testing are described and sampling methods and instruments recommended.

- 392 : 1935** *Included in B.S. 239.* NZ SA

- 394 : 1944** Short link wrought iron crane chain (excluding pitched or calibrated chain).† NZ*
12pp. 2s.
This specification deals with two qualities, 'standard' and 'special,' of hand-welded wrought iron short link chain $\frac{5}{16}$ in. to $1\frac{1}{2}$ in. subjected to proof loads ranging from $1\frac{1}{8}$ tons to 27 tons with recommended safe working loads of one-half the proof loads. The two qualities are differentiated by appropriate elongations on a length of 36 in. when subjected to a specified test load somewhat greater than double the proof load. Weight per fathom and nicked tensile tests are also prescribed in the specification.

- 395 : 1930** Wrought light aluminium alloy (duralumin) sheets and strips for general engineering purposes.
7pp. 2s.

In this specification the quality and chemical composition of the alloy and thicknesses and tolerances are prescribed. A tensile test is included with a table of minimum tensile strengths and an appendix contains notes on heat-treatment.

* With local amendments.

† War emergency issue.

B.S.

- 396 : 1930 **Wrought light aluminium alloy (duralumin) tubes for general engineering purposes.**
8pp. 2s.

The specification covers tubes up to 3 in. diameter. The chemical composition, condition, and mechanical properties are laid down. Other requirements relate to freedom from defects and dimensions (and tolerances). Notes on heat treatment are given in an Appendix.

- 397 : 1933 **Leclanché-type primary cells.** NZ SA
26pp. 2s. Under revision.

Definitions are followed by a general section covering : nomenclature of standard cells, rating of cells, initial voltage, end-point, initial internal resistance, initial polarisation and seating compound. Standard dimensions are given for dry cells and batteries, inert cells and batteries, and wet cells ; also, the requirements for zinc, connecting wires and terminals, and electrolyte for wet cells. Output tests are required, as specified. Appendices describe the methods of carrying out the various determinations, and include a summary of the dimensions and watt-hour outputs of cells and batteries.

- 398 : 1936 **Symmetrical light distributions from lighting fittings.**
10pp. 2s.

This specification gives definitions, and then classifies the light distribution associated with a lighting fitting, first by reference to the class of lighting for which a fitting is intended and second, by the character of the light distribution curve. The method in its present form is applicable only to lighting fittings which have a symmetrical light distribution.

- 399 : 1930 **' High carbon ' steel cylinders for ' permanent ' gases.**
8pp. 2s. Amendments CE 4067, June 1937 ; CE 7715, May 1938 ; CF 9662, March 1942.

The cylinders are suitable for pressures up to 120 atmospheres. By ' permanent ' gases is meant such gases as atmospheric air, oxygen, nitrogen, hydrogen, etc., which at the usual working temperature and pressure remain in a gaseous state in the cylinder. The quality and composition of the steel are specified, together with the general method of construction of the cylinders, their heat treatment and marking. The prescribed tests on sample finished cylinders comprise hydraulic tests, a flattening test, and tensile and impact tests on test pieces cut from the cylinder.

- 400 : 1931 **' Low carbon ' steel cylinders for the storage and transport of ' permanent ' gases.**
8pp. 2s. Amendments CE 4066, June 1937 ; CE 7715, May 1938 ; CF 9662, March 1942.

This specification parallels B.S. 399 (q.v.), except that no provision is made for an impact test on a sample cut from the finished cylinder.

- 401 : 1931 **Steel cylinders for the storage and transport of ' liquefiable ' gases.** NZ
14pp. 2s. Amendments CC 7171, June 1932 ; CE 4066, June 1937 ; CE 7715, May 1938 ; CF 9662, March 1942.

The appropriate formulae and tables are given for the wall thicknesses of cylinders for working pressures from 100 to 2000 lb. per sq. in. By ' liquefiable ' gases is meant gases which have relatively high critical temperatures, and which are generally reduced to the liquid condition by the pressures used in charging them into the cylinders.

The quality and composition of the steel are specified, together with the general method of construction of the cylinders, their heat treatment and marking. The prescribed tests on sample finished cylinders comprise hydraulic tests, a flattening test, and a tensile test on a test piece cut from the cylinder. A table of filling ratios is given for various gases.

B.S.

402 : 1945 Clay plain roofing tiles and fittings.

22pp. 2s.

This revised specification deals with plain tiles and also a range of fittings comprising eaves and top course tiles, tile-and-a-half tiles, various hip, valley and ridge tiles, together with external and internal angle tiles.

Requirements in regard to manufacture, colour, ribs, size, thickness, camber and nail holes are specified in respect of plain tiles and, where appropriate, in respect of fittings. The test requirements include a water absorption test and a revised transverse strength test, but the original test, slightly amended, has been transferred to an appendix as a suggested suitable test for works control.

403 : 1930 Sampling of small fuel up to 3 in., embodying some general principles of sampling.

By DR. E. S. GRUMELL AND DR. A. C. DUNNINGHAM.

53pp. 2s. French translation, 55pp. 5s. German translation, 57pp. 5s.

The degree of accuracy required on sampling is discussed, as is also the theory of size/weight ratio, reduction of the gross sample, use of average error to determine accuracy in sampling, effect of the size and number of increments on the accuracy of a gross sample, and sampling of consignments. Diagrams are given of standard error curves, relation between ash content and average error, and limits of error for various numbers of wagons sampled.

405 : 1945 Expanded metal (steel) for general purposes.

12pp. 2s.

This specification prescribes that the blank steel plates from which the expanded metal is made shall have an ultimate tensile stress of 26/32 tons per square inch for material $\frac{1}{8}$ in. thick and over, and 20/28 tons per square inch for material under $\frac{1}{8}$ in. thick. Tables giving the nominal weight per square yard, sectional area of strands and maximum sizes of sheets and rolls are given in the specification. A cold bend test and clauses giving permitted tolerances on weights and sizes are included.

406 : 1931 Apparatus for workshop testing of permanent magnets.

33pp, 7 plates. 2s. Temporarily out of print.

In this specification apparatus designed for finding such values as remanence and coercive force is described and working drawings are included. Relevant terms and quantities are described and defined. Instructions are given for methods of test for moving coil and rotating disc apparatus, also adjustments, corrections, and other points to be observed. The apparatus applies to horse shoe type magnets not greater in size than 11 cm. across outside of limbs and not less than 5 cm. between limbs for cross sectional areas of about 2 to 10 cm.² and also to straight or slightly curved magnets 6 to 10 cm. long and 2 to 10 cm.² section.

407 : 1939 Phosphor bronze sheets, strip and foil, grades 407/1, 407/2 and 407/3 (up to and including 10 S.W.G. (0.128 in.) thick), excluding drawn material. NZ

17pp. 2s.

This specification gives compositions of the various grades of the material, conditions of manufacture and supply of the sheets, etc., and their dimensions and tolerances. The tests comprise tensile, hardness (Brinell and Diamond Pyramid), and bend tests.

408 : 1931 Ships' cargo lifting blocks.

15pp. 2s.

This specification covers the materials, design and testing of lifting blocks. The nomenclature of block lifting gear and the parts of blocks is also dealt with.

409 : 1931 Naval brass plates, sheets, and strips (excluding naval brass condenser plates).

10pp. 2s.

The plates, etc., shall be delivered in the as-rolled, hard-rolled or annealed condition, as may be specified by the purchaser. The composition of the brass and the conditions of manufacture of the plates, etc., are specified, together with the tolerances

B.S.

on dimensions. Mechanical tests which have to be satisfied are : tensile and forging tests (applicable to both hot- and cold-rolled material) ; hot and cold bend tests on hot-rolled material ; and cold bend tests on cold-rolled material, annealed or hard.

- 410 : 1943** **Test sieves.** NZ* SA
29pp. 2s. Amendment PD 164, October 1943.

This specification refers solely to the sieves themselves and not to the manner of their use. Part 1 gives requirements for the construction of fine and medium mesh test sieves. Part 2 refers to the wire cloth for fine and medium mesh test sieves, and includes tables giving aperture widths, wire diameters, screening areas and aperture tolerances. Parts 3 and 4 refer to the construction of coarse test sieves and perforated plates for the latter, respectively. Appendices deal with methods of examination, measurement, and calibration of sieves, and give particulars of the American (A.S.T.M.) German (D.I.N.) and Institute of Mining and Metallurgy (I.M.M.) standard sieve series.

- 411 : 1931** **Attachment of circular saws for woodworking.**
9pp. 2s.

This specification gives the standard fixing dimensions, driving pin diameters and centre distances for four standard centre hole diameters up to 2 1/2 in. covering all diameters of saws. An appendix illustrates alternative arrangements whereby saws of more than one standard drive may be accommodated on the same machine spindle : these arrangements also serve for the mounting of standard saws on non-standard spindles.

- 412 : 1935** **Engine testing equipment.**
9pp. 2s.

Two classes of indicator gear are recognised as standard, namely : class A, operated by a reciprocating part of the engine ; class B, operated by a rotary part of the engine. The method of laying out the operating mechanism is described and a limit of accuracy given. Dimensions are given for indicator cock connections and indicator diagram sheets.

- 413 : 1931** **Steel tub wheels and axles (fixed running and self-oiling) for use in mines.**
39pp. 2s.

Detailed dimensions of 17 sizes of fixed running wheels from 8 to 15 in. diameter and 8 sizes of self-oiling wheels from 10 to 17 in. diameter are specified together with material specifications for cast steel and manganese steel wheels and steel axles.

- 414 : 1931** **Wrought light aluminium alloy sheets and strip (heat-treated) for general engineering purposes.** (This specification covers the alloy generally known as Y-alloy.)
8pp. 2s.

In essential requirements of the specification are the chemical composition, condition, freedom from defects, thickness and permissible tolerance on thickness and the mechanical properties. Notes on heat treatment are given in an Appendix.

- 415 : 1941** **Electric mains-operated radio and other apparatus for radio, acoustic and visual reproduction.** (Safety requirements.) SA
28pp. 2s.

The specification details the requirements for design, construction, installation and electrical performance as far as necessary to guard against personal injury or fire. It concerns protection of live parts, cut-outs, earthing and external connections to mains and to auxiliaries. The specifications are shown in tables for various parts of equipment. Installation and heating tests are specified, rules for installation and earthing are given. Test requirements (ball-drop) for safety glass are included.

* With local amendments.

B.S.

- 416 : 1944** **Cast iron, spigot and socket soil waste and ventilating pipes fittings and accessories.**
44pp. 3s. 6d.

This revised specification supersedes the issue of 1935 and omits the 1½ and 5 in. sizes which appeared previously, whilst the length of pipes is amended to 5 ft. effective length from spigot to base of socket instead of 6 ft. overall length. All references to the use of these pipes for rainwater purposes have been deleted as these requirements have been transferred to B.S. 460.

The revised specification provides for the quality of material, workmanship, length and weight of straight pipes, finish and marking, and the introduction of an hydraulic test. Dimensions of straight pipes, sockets and ears are covered with the tables of bends, offsets, branches, etc., and the introduction of tables dealing with cast iron holderbats, wire balloons and pipe inlets, and revised tables for sanitary connections.

- 417 : 1944** **Galvanised mild steel cisterns, tanks and cylinders.**
18pp. 2s.

This revised specification has been issued to provide a range of appliances for post-war building and the number of sizes, as compared with the 1936 edition, is therefore considerable reduced.

Requirements are stated for quality of material and workmanship, staying, screwed connections for pipes and immersion heaters, tests and marking.

The test time has been increased from 2 minutes to 5 minutes, but the test pressures are unchanged.

The table of dimensions for cisterns has been considerably extended in order to fix the positions and sizes of overflow inlet and outlet holes in order to assist in the use of pre-fabricated pipe work.

The original grade A range of tanks has been deleted and those previously marked grades B and C now become grades A and B respectively.

The relevant illustrations from the earlier edition are repeated, together with additions showing the standard positions of screwed connections for pipes and for immersion heaters and the standard positions of holes in cisterns.

- 418 : 1931** **Conveyor troughing, for use underground in mines.**
12pp. 2s. Amendment CC 9564, March 1933.

The dimensions and tolerances of three interchangeable types of troughing are specified together with requirements as to quality of material. In addition to the troughing, dimensions are included for the coupling bolts, straps and runways.

- 419 : 1931** **Varnished cloth sheet, strip or tape for electrical purposes.**
27pp. 2s. Temporarily out of print.

This specification covers both yellow and black varnished cotton cloth up to and including a thickness of 10 mils. Part 1 gives general requirements concerning thickness, width, joins, rolling and packing. Parts II and III give the requirements for yellow and black varnished cloth respectively, and cover : electric strength (proof test), maintained electric stress (proof test), tensile strength, tearing strength and ageing. The Appendices give the methods of test, which apply to both types.

- 421 : 1931** **Phosphor bronze castings for gear blanks.**
8pp. 2s. Amendment CC 5386, November 1931.

Manufacture, chemical composition and mechanical properties (tensile and hardness test) of the castings are specified.

- 422 : 1931** **Transformer inter-turn insulation.**
21pp. 2s.

SA.

This specification applies only to windings designed for voltages across their terminals of 1000 volts and above. Items covered are kVA limits, line insulation, number of turns reinforced, and magnitude and method of test.

B.S.

- 423 : 1931 Letter symbols for use in electrotechnics.** SA
10pp. 2s. Temporarily out of print.
This is a list of symbols for electrical and allied quantities, and names of units. Rules for the use of the symbols are also given. This list is also included in B.S. 560.
- 424 : 1931 Vegetable tanned leather belting.**
23pp. 2s.
Includes requirements in regard to hides, tanning, currying and the fabrication of the belting, both lace and copper sewing being dealt with. Mechanical tests are included for tensile strength, elongation, cracking and piping, together with chemical tests on both the curried leather and the completed belting.
- 425 : 1943 Boiler rivets (as manufactured), Forms and dimensions of ($\frac{1}{2}$ in. to 2 in. diameter).** AS NZ
13pp. 2s.
This specification deals with rivets from $\frac{1}{2}$ in. to 2 in. diameter and gives the standard diameters with permissible manufacturing tolerances on the shanks. The forms and proportions are given for lap, ellipsoidal, pan (three types), conical, and rounded countersunk head rivets.
- 426 : 1931 Lathe centres.**
16pp. 2s. Temporarily out of print.
The angle of lathe centres is standardised. Charts showing diameters of work centre and lengths of shaft for light, medium and heavy cuts are given. Critical notes on the relative advantages of the 60° and 90° angle for lathe centres are included.
- 427 : 1931 Diamond pyramid hardness numbers, tables of**
22pp. 2s.
The term 'Diamond Pyramid hardness number' is defined. Details of the apparatus, test specimens, magnitude and method of application of the test loads are specified. Tables of hardness numbers for loads of 5, 10, 20 and 30 kilogrammes are given.
- 428 : 1931 Forge welded steel air receivers.**
14pp. 2s. Amendment CF 3487, August 1939.
Includes a specification for the material used in the manufacture of the receiver together with rules governing the construction. Formulae are stipulated for determining the minimum thickness of shell and end plates. Holes for mountings, compensation and manholes are covered together with inlet and outlet connections. The welding of plates and welded seams are dealt with and heat treatment after manufacture is required. A hydraulic test is stipulated.
- 429 : 1931 Riveted steel air receivers.**
19pp. 2s.
Includes specifications for the plates, rivet bars and stay bars used in the manufacture of the receiver together with rules governing the construction. Formulae are specified for determining the minimum thickness of shell plates, butt straps, end plates with or without stays and for the percentage strength of joints. The spacing and pitch of rivets is also dealt with together with compensation for manholes, access and mountings. An hydraulic test is stipulated.
- 430 : 1944 Solid drawn steel air receivers (not intended for transport).**
9pp. 2s.
This revision replaces the first edition of 1931. Apart from minor verbal changes the standard now includes : steel of higher tensile, 40/60 tons sq. in. ; cites Factories Act 1937 as to access, specifies minimum drain hole and revises hydraulic test pressures. Appendix has been shortened, simplified and brought into line with latest edition of B.S. 18, Forms of B.S. Test Pieces.

B.S.

- 431 : 1940 Manila ropes for general purposes.**
21pp. 2s. Amendments CF 5825, June 1940 ; CF 9641, March 1942 ; CG 154, May 1942 ; PD 154, September 1943 ; PD 194, December 1943 ; PD 230, March, 1944 ; PD 244, April 1944 ; PD 366, June 1945.
Provides for plain or hawser laid (3 strand), shroud laid (4 strand) and cable or water laid (9 strand) ropes from $\frac{7}{8}$ to 18 in. circumference. Three qualities, 'Special,' 'Standard,' and 'Merchant,' are specified. Tensile breaking strengths of both yarns and rope and weights of ropes are specified.
War emergency revisions are made to bring the standard into line with the requirements of the Ministry of Supply. In the case of PD 366, thirteen additional clauses deal with the tests for water repellent rope additional to and numbered in sequence following existing clauses.
- 432 : 1931 Manila ropes for well drilling.** SA
19pp. 2s.
Provides for drilling ropes from 1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ in. diameter for percussion well boring and for bull and calf ropes from 2 to 3 in. diameter. Tensile breaking strengths of both yarns and rope and weights of ropes are specified.
- 433 : 1931 Cold asphalt macadam, penetration (grouting and semi-grouting) method, using road emulsion.** SA
10pp. 2s.
The specification covers thickness of surfacing, size and quality of materials used, and details of preparing the base and laying and consolidating the macadam.
- 434 : 1935 Asphaltic bitumen road emulsion for penetration (grouting and semi-grouting) and surface dressing** SA
31pp. 2s. Temporarily out of print.
This specification covers : composition of emulsion ; requirements for the asphaltic bitumen used in its manufacture ; emulsifying agent, and its proportion in the emulsion ; sampling of emulsion for testing ; water content ; residue on sieving ; coagulation of binder ; coagulation of emulsion at low temperature ; stability in bulk ; viscosity of emulsion ; and lability test for determining rate of breaking of emulsion. The various methods of testing are described in the Appendices, including the methods for sampling and testing asphaltic bitumen.
- 435 : 1931 Granite and whinstone kerbs, channels, quadrants, and setts.** SA
13pp. 2s.
This specification standardises finish and sizes. Three standard types of dressing are given and illustrated by photographs.
- 436 : 1940 Machine cut gears. A. Helical and straight spur.** NZ AS
77pp. 7s. 6d. Amendments CF 7860, June 1941 ; PD 171, October 1943.
The terms are defined with illustrations. The form of gear teeth and clearances are specified and tolerances given. Proportions of gear wheels of cast iron or cast steel and details of wheels, bolts, hoops and keys are described. Formulae for calculating strength, horse power and loadings are given. Basic surface and bend stress factors are given for a wide range of materials. Examples of calculation are added. A number of charts give details of design.
- 437 : 1933 Cast iron spigot and socket drain pipes.** SA
10pp. 2s. Amendment PD 148, August 1943.
The specification covers pipes from 2 in. to 9 in. diameter. The quality of material is stated and dimensions and weights are given for each size. Other requirements include a hammer test, finish and coating.

B.S.

- 438 : 1941** Cooker control units, for use in 2-wire circuits of not more than 250 volts declared voltage.
11pp. 2s.

This specification applies to units suitable for the control of domestic electric cookers having a normal demand of approximately 30 amperes. It sets out the requirements regarding case, control switch, indicating device, auxiliary circuit, fuses for auxiliary circuit, cable openings, and marking.

- 439 : 1932** Portable accumulators and secondary batteries (lead-acid type), including sizes up to 100 ampere-hours at the 10-hour rate. SA
12pp. 2s.

The basis or rating is stated, and other matters dealt with include quality of acid, tolerances on dimensions of plates, standard capacities, discharge tests for capacity, and variation of capacity and specific gravity of the electrolyte with temperature. Recommended sizes of plates are given in the appendix.

- 440 : 1932** Stationary accumulators (lead-acid Planté positive type), for general electrical purposes. SA
15pp. 2s.

This specification applies only to accumulators which are erected on a fixed site and are not intended to be moved habitually from place to place during their life. The basis of rating is stated, and particulars are given regarding standard capacities of accumulators and plates, sizes of plates, tolerances on sizes of plates, design and sizes of plate-lugs, quality of acid, discharge tests for capacity, and variation of capacity and of specific gravity of the electrolyte with temperature.

- 441 : 1932** Cored solder, rosin filled. SA
6pp. 2s. Amendment PD 21, August 1942.

The quality of the materials used and the method of manufacture described. Tolerances on the dimensions and weights are also given. The chemical composition of the class of solder to be used is specified by reference to B.S. 219. (The relevant details are given in an Appendix.)

- 442 : 1932** Terminals for electrical apparatus for railway signalling purposes. NZ SA
5pp. 2s.

This specification deals with main terminals and does not apply to terminals inside the apparatus. The dimensions of approved terminals and nuts are given in the tables and illustrated by figures. No. 0 and 2 BA. threads to B.S. 93 are specified.

- 443 : 1939** Testing of the zinc coating on galvanised wires. SA NZ
13pp. 2s. Amendments PD 17, August 1942 ; PD 340, February 1945.

The preparation of samples is described and details of the solution used for stripping by immersion are given. The copper-sulphate dipping test is specified and test requirements are stated. Tables of minimum weight of spelter coat and of dipping-test data are given.

- 444 : 1932** Plain, dead-soft copper strip, bars and rods, for the windings of electrical machines. SA
11pp. 2s. Amendment PD 61, January 1943.

The quality of the copper is laid down. The finish required is described, and tables of tolerances on widths and thicknesses for appropriate nominal dimensions are included. The mechanical properties include a tensile test for strips, bars, and rods of thickness 0.032 in. or over.

- 445 : 1932** Copper commutator bars for electrical purposes. SA
10pp. 2s. Amendments PD 59, January 1943 ; PD 424, November 1945.

The quality of the electrolytic copper is specified together with minimum tensile strength and hardness. Tolerances on the nominal sizes are included. The bars may be supplied in the hard-drawn or hard-rolled condition.

B.S.

- 446 : 1932 Braided cables with copper conductors for overhead transmission lines.** NZ
11pp. 2s. Amendment CC 7170, June 1932.
Certain terms used are defined and the mechanical and electrical properties of the copper to be used are contained in tables. A relation between resistance hardness and tensile strength of hard-drawn copper is referred to and particulars of stranding, joints, and various tolerances allowable are given. The braided cotton covering is also specified and various tests for it are required.
- 447 : 1932 Graphical symbols for use in connection with interior electrical installations.** SA
3pp. 1s. Under revision.
This comprises a list of symbols extracted from the more comprehensive list given in B.S. 103 : 1933, 'Graphical symbols for electrical purposes.'
- 448 : 1936 Radio valve-bases and valve-holders, dimensions of.** SA
21pp. 2s. Amendment CE 6093, December 1937.
This specification covers such dimensions as are necessary to secure interchangeability, viz., limiting dimensions for the nominal diameter of the pins and their spacing, for the standard 4-, 5-, 7- and 9-pin valve bases. Length of pins is also specified, and tables show the connections of the pins. Appendix A shows gauges for pins, contacts in valve-holders, and location of pins on bases. Appendix B gives dimensions of the metal top (plug) cap for valves.
- 449 : 1937 The use of structural steel in building.** SA
43pp. 2s. Amendment CF 6046, May 1940 (superseding CF 4200, November 1939).
The quality of steel is stated with reference to B.S. 15 : 1936 and 548 : 1934 and notes on general design and loading are given. The working stresses for various members of the structure are specified and details of design and construction are given. Rules for riveting, fabrication and erection are added and formulae and curves for stress calculations are given. Some notes on materials used in association with steel structures are included in an Appendix but do not form part of the specification.
- 450 : 1932 Bright countersunk, round and cheese head screws (B.S.W. and B.S.F.).** AS NZ
7pp. 2s.
 $\frac{1}{8}$ in. to 1 in. diameter screws are covered by this specification. The dimensions of each type of head, and standard lengths which manufacturers are prepared to supply from stock are given. Other matters dealt with include quality of material, sizes and tolerances of screw thread, length of thread and chamfered ends.
- 451 : 1932 Bright square head set-screws with flat chamfered ends (B.S.W. and B.S.F.).** AS NZ
7pp. 2s.
This specification deals with set-screws of from $\frac{1}{4}$ in. to 1 in. diameters. Dimensions for the set-screws and heads are given, together with stock lengths. Other matters dealt with include quality of material, form and size of screw thread, and chamfering of ends.
- 452 : 1932 Tractive armature direct-current neutral track relays.** NZ
10pp. Amendment CE 6817, March 1938.
This specification covers such relays having two, four or six contact arms. Definitions are given, followed by requirements for : overall dimensions ; mounting ; armature supports ; stop-pins ; coils and coil leads ; contacts ; armature torque ; contact resistance and clearances ; flexible connections ; terminals and their marking ; insulation ; adjustment ; high-voltage tests ; pick-up and drop-away values ; finish ; and labelling and marking.
- 454 : 1938 Lead-acid train-lighting accumulators (Planté and Faure type).** NZ
24pp. 2s.
The basis of rating is stated, and particulars are given regarding materials for and construction of plates, separators, and cell-boxes, tolerances on dimensions of boxes, quality of electrolyte, capacity, and acceptance tests.

B.S.

- 455 : 1945 Schedule of sizes for locks and latches for doors.**
25pp. 3s. 6d.

The standard provides for three types of latches (cylinder, rim, night ; mortice ; and rim with slide bolt) and eight types of locks (mortice 2 bolt upright ; mortice 2 bolt upright rebated ; mortice bathroom upright ; mortice dead ; rim 2 bolt horizontal ; rim 2 bolt horizontal narrow case ; rim 2 bolt upright). The general dimensions of each latch and lock are given, together with size and position of all fixing screws. Detailed drawings—2/3rd full size—of each are included in the standard.

- 456 : 1932 Track-circuit insulation.**

18pp. 2s. Amendment CC 7945, September 1932. Temporarily out of print.

The rail joint insulations referred to in this specification are applicable, except when stated to the contrary, to British Standard bull-head and flat-bottom rails. Definitions are given, followed by requirements for shapes and dimensions of the sets of insulations for rail joints, check-rail joints, switch stretcher-bars and sole plates, connecting rods, and strain insulators. The shapes and dimensions are shown in a series of plates. Tolerances on dimensions are indicated.

- 457 : 1932 Identification of chemical pipe lines.**

NZ

7pp. 2s.

The object of this specification is to differentiate between the type or nature of the fluid or gas conveyed, by means of a series of identification plates. The plates are divided into six categories and are so designed as to suggest the nature of the fluid or gas conveyed by the pipe. The material, sizes, and method of fixing and colouring of the plates are specified. A table shows the colours of the plate and shape of the identification sign for each of the six categories.

- 458 : 1939 Xyloles (2° xylene, 3° xylene, and 5° xylene).**

SA

46pp. 3s. 6d.

These specifications cover colour, specific gravity and distillation range and include limits for water, corrosive sulphur, hydrogen sulphide and mercaptans, neutrality, residue on evaporation and flashpoint together with an acid-wash test. The 2° xylene specification also includes limits for non-sulphonable hydrocarbons. Sampling and test methods are described.

- 459 : Part 1 : 1944 Panelled and glazed wood doors.**

18pp. 2s. Amendment PD 344, March 1945.

This specification provides for the design, dimensions and construction of doweled and morticed and tenoned panelled and glazed wood doors for internal and external purposes and for garage doors.

- 459 : Part 2 : 1945 Flush wood doors (with plywood faces).**

10pp. 2s.

This standard provides for two sizes of external doors and four sizes of internal doors. They may be obtained with or without glazing opening. Details specified relate to the quality of material, construction and fittings. A method of glazing is described in an appendix.

- 460 : 1944 Cast iron spigot and socket rainwater pipes, fittings and accessories.**

45pp. 3s. 6d.

This specification was first published in 1932 when it covered light rainwater pipes only, the heavier grades being obtained by the use of pipes made to B.S. 416. When being revised for the post-war building programme, the opportunity was taken to include a complete range of rainwater pipes in three grades. In addition, a complete range of fittings and accessories has been added. Other amendments include the deletion of two little-used sizes in the light grade (3½ in. and 4½ in.) and two in the medium grade (1½ in. and 5 in.), and the specification of a 5 ft. *effective* length, i.e., from spigot to base of socket, instead of a 6 ft. overall length. The revised publication thus covers in one document requirements for light rainwater pipes of nominal sizes of 2 in., 2½ in., 3 in., 4 in., 5 in., and 6 in., and for sizes of 2 in., 2½ in., 3 in., 3½ in., 4 in., and 6 in., in the medium grade, and for sizes of 3 in., 3½ in., and 4 in., in the heavy grade.

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- 461 : 1932 Bordeaux connections for wire rope and chain for general engineering purposes.**
12pp. 2s. Amendment CE 2207, December 1936.

Detailed dimensions are specified for connections for wire ropes from $1\frac{1}{2}$ to $4\frac{1}{4}$ in. circumference and for sizes of short link chain from $\frac{7}{16}$ to $1\frac{1}{4}$ in. Proof loads and maximum recommended working loads are given and an appendix is included giving a recommended method of making a wire rope Bordeaux connection splice.

- 462 : 1932 Bull dog grips for wire ropes for general engineering purposes.**
9pp. 2s. Temporarily out of print.

Detailed dimensions and tolerances are specified for grips for wire ropes from $\frac{3}{4}$ to 7 in. circumference. Materials are specified and a recommended method of applying the grips to wire ropes is included in an Appendix.

- 463 : 1943 Sockets for wire ropes for general engineering purposes.** NZ
12pp. 2s. Amendment PD 151, August 1943.

Detailed dimensions and tolerances are specified for both open and closed type sockets for wire ropes from $\frac{7}{8}$ to 5 in. circumference. Workmanship and heat treatment are dealt with and specifications included for materials. A recommended method of socketing is given in an Appendix.

- 464 : 1932 Thimbles for wire ropes for general engineering purposes.**
11pp. 2s.

Detailed dimensions and tolerances are specified for ordinary thimbles for wire ropes from 1 to 9 in. circumference, for reeving thimbles for wire ropes from 2 to 5 in. circumference and for solid thimbles from 1 to 8 in. circumference. The thimbles are intended for ropes with a live load as used for cranes and lifts and also for single part wire rope slings and similar general engineering purposes. Specifications are included for materials and a recommended method of making a wire rope thimble splice is included in an Appendix.

- 465 : 1932 Pitched or calibrated wrought iron load chain.** NZ
13pp. 2s.

Covers polished and unpolished pitched chain from $\frac{7}{32}$ to 1 in. diameter for safe working loads from 5 cwt. to $7\frac{1}{2}$ tons, the chain having an overall length of link not greater than six times the nominal size of the bar iron from which the chain is made. Tests are included for elongation, ultimate breaking strength, nicked tensile test and cold and hot bend tests.

- 466 : 1932 Electric overhead travelling cranes (power driven in all motions).**
31pp. 2s. Amendments CD 7507, August 1935 ; CF 9707, March 1942.
Temporarily out of print.

Applies to cranes of spans up to 80 ft. and load capacities up to 70 tons for general use in factories and workshops. Detailed requirements including minimum factors of safety for the design of the crane structure and moving parts are specified and hoisting equipment and brakes, controls and power unit are dealt with. Qualities of material are specified for all important parts together with requirements as to the performance testing of the completed crane.

- 467 : 1932 Marking and colouring of foundry patterns.** NZ
8pp. 2s. Temporarily out of print.

The specification defines, and illustrates by means of a key diagram of a typical pattern and core box, the appropriate colouring of patterns and core boxes for ferrous and non-ferrous castings.

- 468 : 1932 Solid rolled steel railway wheels and disc wheel centres.** NZ
18pp. 2s. Amendment CF 9754, March 1942 (superseding all previous amendments).

There are three separate specifications covering solid rolled steel wheels for carriages and wagons (with analysis) ; solid rolled steel wheels for wagons (without analysis)

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and disc wheel centres for carriages and wagons. Each specification includes requirements for the quality of material, branding, heat treatment, tensile and falling weight tests, the methods of testing are described. The specification for disc wheel centres permits the deflection test as an alternative. The forms of tensile test pieces are given in an Appendix.

- 469 : 1939 Electric lamps for railway signalling.** NZ
26pp. 2s. Amendments PD 25 and PD 16, September 1942 ; PD 106, April 1943.
Temporarily out of print.
The specification covers lamps for 100V and over and lamps for voltages up to (incl.) 24V. The former are referred to B.S. 161. Dimensions are given in a table and requirements regarding insulation, filaments and marking are stated. Test conditions for cap attachment, insulation and life are specified and drawings are given. A table gives a schedule for obsolescent lamps.
- 470 : 1932 Manhole openings for chemical plant : fixed and mobile. Size and position only.** (Not applicable for pressures over 175 lb. per sq. in.)
7pp. 2s. Amendment CD 817, July 1933.
The specification covers manholes for process vessels and for mobile and storage tanks, except those for liquified gases. The numbers, position, size and shape are specified.
- 471 : 1932 Extra-light tubular steel poles for telegraph and telephone purposes. (Farmers' poles.)** SA
11pp. 2s. Amendment CD 49, May 1933.
The dimensions of the poles, bases, upper tubes and wedges are given. Caps and lightning-rods are specified and corrosion protection described. A set of drawings show assembly and details of base, joints, cap and lightning-rod.
- 472 : 1932 Mains-operated synchronous clocks.**
5pp. 2s.
External and internal electrical connections are specified and terminals, motor housing and winding described. Rules for insulation are given and the performance at reduced voltage is stated.
- 473 : 1944 Concrete plain roofing tiles and fittings.**
22pp. 2s.
Covers materials, colour, size, camber, nail holes and tests to be applied. This revised edition includes tile fittings, i.e., eaves, tiles, tile-and-a-half tiles, hip tiles, ridges, and vertical angle tiles.
- 474 : 1932 Synthetic resins (phenol-aldehyde type) for the manufacture of boards, tubes and cylinders.** SA
12pp. 2s.
Tests for the determination of melting point (for solid resins), solubility after transformation, electric strength, and adhesiveness are specified. A specification for the quality of pure sulphate wood-pulp paper, which is used in one of the tests, is included.
- 475 : 1932 Tractive armature direct-current neutral line relays.** NZ
11pp. 2s.
Casing of moving parts is specified and overall dimensions are given. Mounting, armature supports, coils and contacts are described and contact resistance and clearances stated. Terminals and insulation are specified and a table showing adjustment of pick-up and drop-away values is given. High-voltage tests and determination of pick-up and drop-away values are described and labelling and marking is given.

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- 476 : 1932** Fire-resistance, incombustibility and non-inflammability of building materials and structures, Definitions for (including methods of test). AS SA
19pp. 2s. Amendments PD 3, July 1942 ; PD 374, July 1945.

The definitions of these terms used in relation to building materials are given, and the methods of testing materials and various parts of structures to determine these characteristics are described.

- 477 : 1933** Wrought light aluminium alloy bars for general engineering purposes. (This specification covers the alloy generally known as duralumin.) NZ
13pp. 2s.

The quality of material, chemical composition and method of manufacture are specified, and limiting dimensions for round, square and hexagon bars are given : requirements regarding tensile tests are included. Notes on the heat-treatment of wrought light aluminium alloy (duralumin) are added.

- 478 : 1933** Wrought Y-alloy bars for general engineering purposes. NZ
13pp. 2s.

The quality of material, chemical composition, and method of manufacture are specified, and limiting dimensions for round, square and hexagon bars are given : Requirements regarding tensile tests are included. Notes on the preparation and heat-treatment of Y-alloy are included.

- 479 : 1939** Coal tar naphthas (coal tar solvent naphthas 96/160 and 90/160, coal tar heavy naphtha 90/160, coal tar heavy naphthas (unrectified) 90/190 and 90/200). SA
51pp. 3s. 6d.

These specifications cover colour, specific gravity and distillation range and include limits for water, corrosive sulphur (96/160s), hydrogen sulphide and mercaptans (96/160s and 90/160s), residue on evaporation (96/160s and 90/160s), flashpoint (90/190s and 90/200s) and phenols (90/190s and 90/200s). Neutrality and acid-wash tests are included in the 96/160s and the 90/160s specifications. Sampling and test methods are described.

- 480 : 1942** Metal-sheathed, impregnated, paper-insulated plain annealed copper conductors for electricity supply, including voltage tests, dimensions of SA NZ
44pp. 3s. 6d. Partly superseding B.S. 7 : 1926. Amendments PD 120, June 1943 ; PD 332, February 1945.

International standards of resistance for copper, density and temperature coefficients are given and sizes of stranded conductors tabulated. Resistance temperature coefficients and conversion factors are given. Thickness of insulation and sheath and methods of bedding, armouring and serving are specified and bending and voltage tests described. Rules for identification of cores are stated and a set of tables give dimensions of circular wires, stranded conductors and paper-insulated cables up to 22 000V. Supplementary tables give dimensions of non-standard cables for unearthed systems.

- 481 : 1933** Woven wire and perforated plate sieves and screens for industrial purposes. 9pp. 2s.

This specification applies to (a) clear mesh woven wire with apertures from $\frac{1}{8}$ in. to 4 in., (b) woven wire cloth from 300 to 4 meshes per linear inch, (c) heavy perforated plate with round holes from $1\frac{1}{16}$ in. to 3 in. diameter, and (d) light perforated plate with round holes from 0.029 in. to 1 in. diameter.

- 482 : 1945** Wrought iron and mild steel hooks for cranes, slings and general engineering purposes : excluding building operations. 32pp. 2s.

The specification provides for six types of hooks of two forms ; trapezoidal and circular in cross section. The hooks are specified with cylindrical shanks and with eyes (a) for use with chain (b) for use with shackles (c) for use with wire rope thimbles. Working loads are : trapezoidal shank hooks $\frac{1}{4}$ to 50 tons, trapezoidal

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eye hooks for chain $\frac{9}{16}$ to $1\frac{1}{2}$ tons, circular section eye hooks $\frac{1}{4}$ to 5 tons, trapezoidal eye hooks for wire rope $\frac{1}{4}$ to $7\frac{1}{2}$ tons.
The specification includes recommendations as to shank stresses and notes as to design and also provides for the quality of material, heat treatment and testing.

- 483 : 1933 **Attachment of circular metal cutting saws (for hot working).** NZ
7pp. 2s.

This specification establishes the essential fixing dimensions for five ranges of saw diameters from 24 in. to 72 in., with spindle holes from 3 in. to 18 in.

- 484 : 1933 **Rolled steel disc wheel centres for electric tramways cars.** NZ
11pp. 2s.

The quality of material is stated and test requirements and methods of testing described with regard to falling-weight or deflection test and tensile test. Details of wheel centres are given in drawings.

- 485 : 1934 **Tests on thin metal sheet and strip (not exceeding 0.128 in. (10 S.W.G.) in thickness.** NZ SA
24pp. 2s.

Methods of carrying out tensile, bend and hardness tests on thin sheet material, i.e., not exceeding 10 SWG thick are described.
In the section on tensile tests definitions are given of yield stress, proof stress, etc., and an extensometer specially designed for the work is described and illustrated. There is a general note about cupping tests.

- 486 : 1933 **Asbestos cement pressure pipes.** NZ
13pp. 2s.

This specification covers : composition and manufacture ; classification and dimensions, including tolerances in the latter ; tests for straightness, regularity of thickness and diameter (external and internal) ; bursting and hydraulic tests ; and testing of joints. Requirements are also given for : asbestos cement sleeves ; iron collars, saddles, flanges, etc. ; bolts and nuts ; and rubber rings. Methods of testing are described in the Appendices.

- 487 : 1939 **Fusion welded steel air receivers.**
25pp. 2s.

Applies to fusion welded steel air receivers not less than 9 in. internal diameter but does not apply to air or vacuum vessels used on railways or to gas cylinders (see B.S. 399, 400 and 401).

Includes a specification for the material used in the manufacture of the receiver together with formulae for determining the thickness of shell and end plates. Types of welded joints are specified together with particulars in regard to the methods of making welded joints, the dishing and flanging of end plates and the method of fixing the ends. It also contains rules in regard to compensation for manholes inlet and outlet connections and access and a hydraulic test is stipulated.

- 488 : 1933 **Moulded insulating materials suitable for accessories for general electric installations.** NZ SA
20pp. 2s. Temporarily out of print.

The electrical, physical and general properties required are specified. Methods of determining the surface resistivity, plastic yield, toughness, and water absorption : methods of applying the proof test for electric strength, cross-breaking strength, and compressive strength : and tests for non-ignitability and self-extinction are given in detail.

- 489 : 1933 **Turbine oils.** NZ SA
28pp. 2s. Amendment PD 211, February 1944.

This specification gives a description of the material, and a table showing requirements in respect of physical properties for the various grades, covering : viscosity,

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flash point, cold test temperature, tendency to sludge, volatility, total acidity, demulsification number, and total sulphur content. A test for deleterious sulphur is also required. The methods of testing are described in the Appendices.

- 490 : 1943 Rubber conveyor and elevator belting.† NZ
16pp. 2s. Amendment PD 265, July 1944.

This specification is based on the Rubber Control Order No. 16 limiting the use of rubber in belting. Seven types of conveyor belting and three types of elevator belting are included covering all classes of usage, recommendations as to which being included in an Appendix. Requirements are specified in regard to the construction of the belting and the quality of the fabric and rubber cover and sampling and test methods are described.

- 491 : 1933 Nomenclature of timber for aircraft purposes (including sources of supply and application to aircraft).
41pp. 2s.

Standard names for timbers used in aircraft are given together with the corresponding botanical names and sources of supply. Other details include alternative names in use for the timbers, abbreviations of the names of the authors of the botanical names and also the names in full. There is an index to names of timbers.

- 492, 728, 834 : 1944 Precast concrete blocks.
20pp. 2s.

492. Precast concrete partition slabs (solid).

728. Precast concrete hollow partition slabs.

834. Precast concrete blocks for walls.

The recent revision of these specifications combines the three in one volume. The specifications cover the quality of cement and aggregate to be used, the dimensions of the blocks and the tests to be applied.

- 493 : 1945 Airbricks and gratings (dimensions and workmanship).
8pp. 2s.

This revised specification has been issued to cover a wider range of materials than heretofore and now prescribes requirements in respect of cast iron, concrete, copper, copper alloys and aluminium-silicon alloys.

The overall dimensions, shape of apertures and size of wall hold are laid down and it is required that the articles should be indelibly marked with the unobstructed area in sq. in. An appendix gives illustrations of typical articles complying with the requirements.

- 494 : 1933 Cold drawn weldless steel boiler and superheater tubes for designed steam temperatures not exceeding 850° F. (454° C.). NZ SA
7pp. 2s. Amendment CF 8471, September 1941 ; CG 531, June 1942.

Provides for acid and basic open hearth steel tubes, of a maximum S and P content of .04 per cent. Tensile limits of 20 to 26 tons per sq. in. are specified with elongations varying with thickness of tubes and form of test piece. Flattening, expanding and hydraulic tests also stipulated together with permissible variations in thickness and diameter.

- 495 : 1933 Fittings for double-capped tubular lamps. AS NZ SA
6pp. 2s. Amendments CD 6243, April 1935 ; CE 2072, December 1936 ; PD 16, September 1942.

Details of design, such as bore and spacing of lampholder, pressure on plunger springs, and protection of live contacts are specified, and the method of testing each length of fitting for correct length is given. Maximum and minimum dimensions of caps for double-capped tubular lamps are included.

† War emergency issue.

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- 497 : 1945** Cast manhole covers, road gully gratings and frames. 40pp. 3s. 6d.

The articles are classified according to the following applications :

Manholes covers and frames : *Heavy duty* for carriageways. *Medium duty* for foot-paths, etc. *Light duty* for domestic premises or places where they will not be required to carry wheeled traffic.

Gully gratings and frames : *Heavy duty* for main roads. *Medium duty* for roads on which there is no expectation of heavy vehicles or fast traffic. *Kerb type* covers and frames for setting into footpaths and verges.

Requirements are given in respect of dimensions, materials, manufacture and workmanship, protective coatings, marking and inspection for a range of covers and gratings, together with frames, applicable to the various duties. All covers and gratings are required to withstand a loading test appropriate to the class of duty. Detailed drawings and tables of dimensions relating to each pattern are included, together with details of approximate weight and approximate waterway areas for gratings.

- 498 : 1933** Engineers' files and rasps. (Not including precision, watchmakers', needle and Lancashire pattern files.) NZ
19pp. 2s.

Twenty-five types of files and rasps described and illustrated and the overall dimensions, with manufacturing tolerances, are laid down for all of the standard lengths. The numbers of teeth are specified for five types of cut.

- 499 : 1939** Welding and cutting, nomenclature, definitions and symbols for NZ
48pp. 2s.

The terms are grouped in sections to cover forge, pressure and fusion welding ; equipment and supplies. The terms listed in these sections are fully defined and in most cases illustrated. An Appendix shows a recommended method for indicating welds on drawings. A comprehensive index is included.

- 500 : 1933** Steel railway sleepers for flat bottom rails. SA
17pp. 2s. Amendment CE 375, June 1936.

The quality of the steel is specified, and details are given for provision of test samples, templates and gauges ; method of manufacture ; branding ; cleaning and dipping ; estimation of weight ; and inspection during manufacture. A table of standard dimensions and weights for sleeper plates is included.

- 501 : 1933** Metric units of volume, report on AS NZ
8pp. 2s.

This report gives a resumé of the relevant facts relating to the history of the metric units of volume and of current practice, and prescribes that where metric units of volume are used in the chemical industry the unit to be employed shall be the millilitre.

- 503 : 1933** Creosote for fuel in furnaces.
17pp. 2s. Under revision.

This specification covers specific gravity, viscosity, fluidity, calorific value and flashpoint and includes limits for water, ash and matter soluble in benzole. Sampling and test methods are described.

- 504 : 1944** Drawn lead traps.
12pp. 2s. Amendment PD 353, April 1945.

The specification covers 'S' traps, 'Q' traps, 'P' traps, running traps and bag traps from 1 in. up to 4 in. diameters. There are two ranges, one for use with the two pipe system having a water seal of 1½ in. for traps up to 2 in. and a water seal of 2 in. for traps above 2 in. up to 4 in. and the other for use with one pipe system having a water seal of 3 in. for all sizes of traps.

The chemical composition of the lead, dimensions and weight of traps and details of the screw caps are specified.

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- 505 : 1939 Road traffic control (electric) light signals.** AS*
35pp. 2s. Amendment CF 4399, November 1939. Temporarily out of print.
Definitions of terms used are given and optical requirements, such as, candle power, direction of beam, and colorimetric properties of the glasses are set down. Details of the construction and dimensions of various parts are prescribed and a description is included of wiring, control requirements, and tests to be made. The questions of surges and radio interference are dealt with and the Appendices contain reference to Post Office regulations to be observed.
- 506 : 1933 Methyl alcohol (methanol).** SA
17pp. 2s.
The specification covers specific gravity, miscibility with water, and distillation range and includes limits for acidity, residue on evaporation, aldehydes and ketones and sulphur and sulphur compounds. Sampling and test methods are described.
- 507 : 1933 Ethyl alcohol.** SA
6pp. 2s. Temporarily out of print.
The specification covers strength and miscibility with water and includes limits for acidity, residue on evaporation and aldehyde content. Sampling and test methods are described and an Appendix gives a table showing the relation between specific gravity, proof strength, and percentage of alcohol by volume and by weight.
- 508 : 1933 Normal butyl alcohol (butanol).** SA
12pp. 2s.
The specification covers specific gravity, distillation range and flashpoint and includes limits for residue on evaporation, acidity and aldehyde content. Sampling and test methods are described.
- 509 : 1933 Acetone.** SA
12pp. 2s.
The specification covers specific gravity, distillation range and miscibility with water, and includes limits for residue on evaporation, acidity, water, alkalinity and alcoholic impurities together with a permanganate test. Sampling and test methods are described.
- 510 : 1933 Single-coat asphalt (cold process).** SA
28pp. 2s. Temporarily out of print.
The materials are specified by gauge and physical properties of bitumen, asphalt, fluxes and emulsions are stated. Gradings of sand and filler are given and details of construction and workmanship and of mixing and laying specified. Dimensions of testing sieves are given and apparatus and methods for penetrometer tests, viscosity tests and oil flux distillation and for determination of acids and water content and for heating loss described.
- 511 : 1933 Two-coat asphalt (cold process).** SA
28pp. 2s.
The materials are specified by gauge and physical properties of bitumen, fluxes and emulsion stated. Gradings of aggregates are given and rules for construction and workmanship and for mixing and laying are stated. Details of sieves for testing and of apparatus and methods for penetrometer and viscosity tests, for distillation of oil flux and for determination of acid and water content, and for loss on heating, are given.

* With local amendments.

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- 512 : 1934** Hot finished weldless steel boiler and superheater tubes for designed steam temperatures not exceeding 850° F. SA
7pp. 2s. Amendment CG 531, June 1942.

Provides for acid and basic open hearth steel tubes of not less than 1 1/2 in. OD and of the following minimum thicknesses :

Tubes	1 1/2 to 3 1/2 in. OD	10 SWG.
	over 3 1/2 to 4 1/2 in. OD	9
	over 4 1/2 to 5 1/2 in. OD	8
	over 5 1/2 in. OD	7

The material and condition of the tubes is specified. Tensile, flattening, expanding and hydraulic tests are described and tolerances in dimensions given.

- 513 : 1933** European larch poles for transmission lines.
12pp. 2s.

The wood is specified with particulars of when the trees should be felled, and how the poles should be dressed and stamped. Standard sizes are tabulated for light, medium, and stout grades. Treatment before creosoting and methods of creosoting are dealt with ; the creosote used having to conform to B.S. 144. Appendices contain particulars of tests for moisture content, and of breaking loads.

- 514 : 1933** Baking insulating varnish (bitumen type) for electrical purposes.
13pp. 2s.

Requirements are laid down in respect of : finish ; volatile matter ; specific gravity ; viscosity ; drying time ; electric strength at 90°C. ; resistance to moisture ; ageing ; acidity or alkalinity of varnish film ; and flash point. The methods of testing are described in the Appendices.

- 515 : 1938** Carbolic acids 60's. NZ SA AS
27pp. 2s.

Includes specifications for crude, dehydrated and distilled acids. The specifications provide for specific gravity, crystallising point and residue on distillation and include limits for water, neutral oils and pyridine bases, acidity and alkalinity. Methods of sampling and analysis are specified.

- 517 : 1938** Cresylic acid of high orthocresol content. NZ SA
22pp.

Provides for specific gravity, distillation and minimum orthocresol content and includes limits for water, neutral oils and pyridine bases, hydrogen sulphide and freedom from acids and alkalis. Methods of sampling and analysis are specified

- 518 : 1933** Medium-hard copper strip, bars and rods for electrical purposes.
12pp. 2s. Amendment PD 60, January 1943.

Requirements are laid down for : quality of material ; resistance at 60°F. ; finish ; dimensions and tolerances thereon ; provision of test samples ; dimensions of tensile test pieces ; tensile strength and elongation ; hardness ; bend strength ; re-tests ; inspection ; and testing facilities. The Appendix gives a table of temperature coefficients of resistance.

- 519 : 1933** Tractive armature, direct-current neutral-polar line relays. NZ
12pp. 2s. Amendment CE 6828, March 1938.

Casing of moving parts is specified, dimensions are given and mounting, armature supports, coils and contacts are described. Contact resistance and contact clearances are stated and terminals, connections and insulation specified. High-voltage tests are described and determination of pick-up and drop-away values given. Finish and markings are specified.

- 520 : 1933** Alternating-current track relays (2-element, 2-position). NZ
12pp. 2s.

Casing of moving parts is specified and overall dimensions are given. Mounting,

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clearance and bearings are described and details of coils and contacts are given. The conditions of performance, high-voltage tests, pick-up, normal and drop-away voltage are stated and finish and markings described.

- 521 : 1938 Cresylic acid (50/55 per cent. metacresol).** NZ SA
21pp. 2s.

The specification covers metacresol content, specific gravity and distillation range and includes limits for water, neutral oils and pyridine bases, hydrogen sulphide and acids and alkalis. Sampling and test methods are described.

- 522 : 1938 Orthocresol, metacresol and paracresol.** NZ SA
20pp. 2s.

The specifications cover solubility in caustic soda, specific gravity, boiling point, crystallising point, and include limits for residue on evaporation. Sampling and test methods are described.

- 523 : 1938 Phenol.** NZ SA
15pp. 2s.

The specification covers solubility in water, crystallising point and boiling point and includes limits for residue on evaporation and water. Sampling and test methods are described.

- 524 : 1938 Refined cresylic acid.** NZ SA
22pp. 2s.

The specification provides for six grades of material : 99.8, 99, 98, 97 and 95 per cent and covers specific gravity, colour and distillation range. Limits are specified for water, pyridine bases and neutral oils, acids and alkalis and hydrogen sulphide. Sampling and test methods are described.

- 525 : 1933 Fibre cores for wire ropes.** NZ
15pp. 2s. Amendment PD 242, April 1944.

The specification covers fibre cores of hemp, jute, Manila, New Zealand or St. Helena hemsps and African sisal for wire ropes for cranes, lifts, oil wells and collieries from $\frac{3}{4}$ in. to 8 in. circumference. Limits of application and grade of fibre are stated and sizes are given. Preservation and lubrication is specified and chemical and physical properties are stated and test methods described.

- 526 : 1933 Definitions of gross and net calorific value.** NZ SA
5pp. 1s. Amendment CD 3881, July 1934.

Definitions are given for gaseous liquid and solid fuels.

- 527 : 1934 Lapwelded wrought iron boiler tubes for external pressure.** NZ
6pp. 2s.

The quality of material and the condition of tubes are specified, together with permissible variation in thickness and diameter of tubes, and mechanical tests. (Tensile, crushing, expanding and hydraulic.)

- 528 : 1934 Lapwelded steel boiler tubes for external pressure.** NZ
6pp. 2s.

The quality of material is specified, and details are given for tensile, flattening, expanding, and hydraulic tests. The permissible variations in thickness and diameter of tubes are set out.

- 529 : 1944 Parts 1 and 2 : Steel eyebolts.**
22pp. 2s. Amendment PD 394, September 1945.

Part 1 : With collars. Deals with forged screwed eyebolts $\frac{3}{8}$ in. to 3 in. with collars and short screw tail for lifting loads singly vertical or in pairs by two legged sling. For use only with shackles B.S. 825. Correct and incorrect methods of

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slinging and proportionate sling loads appropriate to the included angle of sling legs are given.

Part 2 : Without collars for lift suspension. Deals with forged screwed eyebolts $\frac{3}{8}$ in. to $1\frac{1}{8}$ in. with long plain screw tails fitted with two nuts. For use with wire rope thimble ends for the suspension of lift cages and balance weights and to equalise the load between multiple wire ropes used for the purpose given.

Both parts of specification deal with material, heat-treatment, screw threads, tolerances, proof and safe working loads and test certificate.

- 530 : 1937 Graphical symbols for telephony, telegraphy and radio communication.** SA
62pp. 2s. Under revision.

This specification is arranged in sections, showing symbols common to telecommunications and particularly to telephony, telegraphy and radio communication ; and indicates the guiding principles to be observed in using the symbols. Under each section, symbols for use on circuit diagrams, skeleton drawings, and plans are shown. Schematic diagrams of typical circuits illustrate the use of the symbols. A comprehensive index covering all the symbols is included.

- 532 : 1934 Light aluminium alloy forgings for general engineering purposes.** (The specification covers the alloy generally known as duralumin.) SA
8pp. 2s.

The quality of material, chemical composition, and physical and mechanical properties are specified. A suitable method of final heat-treatment is described.

- 533 : 1934 Y-Alloy forgings for general engineering purposes.**
10pp. 2s.

Two classes of forgings, namely class A, piston forgings, and class B, general forgings, are dealt with. The specification covers quality of material, chemical composition, and physical and mechanical properties, including methods of test. A suitable method of final heat treatment is described.

- 534 : 1934 Steel spigot and socket pipes and specials for water, gas, and sewage.** SA
32pp. 2s. Temporarily out of print.

This specification covers lap welded and weldless pipes from 2 in. to 72 in. nominal size but not to commercial gas, water and steam pipes which have screwed joints. The quality of the steel and tensile and bend tests are specified. A hydraulic test is required to appropriate pressures. The dimension of the pipes are tabulated with other data on forms of joints, collars, tees, bends, etc. Detailed requirements for coating and lining the pipes are also included.

- 535 : 1938 Miners' lamp bulbs.** NZ
45pp. 2s. Amendments PD 104, April 1943, superseding all previous amendments; PD 166, September 1943. Temporarily out of print.

Dimensions, initial rating, and life performance are specified. The procedure for the selection of lamp bulbs for test is given. Appendices give examples of calculation of standard deviation and coefficient of variation. A report on the result of tests in mines and laboratories of lamp bulbs is included.

- 536 : 1934 Light flat bottom railway rails and fishplates 14 and 20 lb. per yard and portable railway track 24 in. gauge. Types 1, 2 and 3.** SA
21pp. 2s. Amendment CD 3023, April 1934.

This specification contains fully dimensioned drawings of the various types of rail and of methods of attachment to sleepers. The tensile strength of the steel used shall be not less than 35 tons/sq. in. Particulars of standard straight lengths, curves, and turn-outs are given.

- 537 : 1934 Lancashire and Cornish boilers.** NZ
40pp. 3s. 6d. Amendments November 1939, incorporating previous amendment; PD 235, April 1944.

Deals with the materials, construction, workmanship, scantlings inspection and testing of Lancashire and Cornish boilers. Materials specifications are included

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for plates, rivets and bars. The rules in regard to workmanship and construction deal with the plates, cylindrical shells, butt straps, flues, angle rings, gusset stays, manhole mouthpieces and doors, seatings for mountings, rivet holes and riveting. The rules for scantlings include formulae for determining thickness of shells, butt straps, flat and dished end plates and furnace and flue sections together with formulae for the calculation of the efficiency of riveted joints and for the spacing of rivets. Breathing space and the design of gusset stays are also dealt with. Inspection during construction is also specified together with details of the hydraulic test.

- 538 : 1940 Metal arc welding in mild steel as applied to general building construction.**
23pp. 2s. Amendment July 1940.

The specification lays down the quality of materials, forms of joint stresses permitted and requirements for workmanship. Nine types of butt joint weld are specified and illustrated. Fillet welds are also described and definitions of certain terms used are included. Methods of carrying out bend, and fillet weld inspection tests are given in Appendices, and also some notes of the design of welded joints. This specification does not apply to tubular members for which see B.S. 938.

- 539 : 1937 Dimensions of drain fittings, salt-glazed ware and salt-glazed glass (vitreous) enamelled fireclay.** NZ

38pp. 2s. Amendment PD 54, January 1943.

This specification gives the standard sizes and dimensions for the following range of fittings :

Channels, straight.	Gullies, square grid, with or without inlets.
Channels, taper.	Gullies, round, with or without inlets.
Channel junctions.	Round street gullies.
Channel bends.	Hoppers rounds.
Channel interceptors.	Hoppers with square grid.
Branch bends.	Raising pieces.
Traps with raising pieces.	Rainwater shoes.

- 540 : 1937 Salt-glazed glass (vitreous) enamelled fireclay pipes, including taper pipes, bends and junctions.** SA *

17pp 2s.
This specification covers straight pipes, level invert taper pipes, radius bends, taper bends, and junctions. It gives definitions, tables of dimensions and permissible variations therefrom, and requirements for enamelling and glazing. Impermeability and hydraulic tests are also provided for.

- 541 : 1934 Determining the Rideal-Walker coefficient of disinfectants, technique for** AS SA

13pp. 2s. Amendment PD 141, August 1943.
Requirements are laid down for the apparatus and reagents employed, and for the method of carrying out the test. The method of calculating the coefficient is described, being illustrated by an example. A table is included in the Appendix showing Rideal-Walker coefficients over the range of dilution of disinfectant from 1 : 100 to 1 : 2500.

- 542 : 1941 Cable glands and sealing boxes for use in mines.** NZ SA

15pp. 2s.
This specification applies to cable sealing boxes provided with cable glands designed to be filled with solid setting bituminous compound, and does not apply to sealing boxes filled with oil. Details of construction, and clearance distances between bare conductors are specified. Details of the methods for the jointing, bonding and sealing of cables are given.

- 544 : 1934 Linseed oil putty (types 1 and 2).**
8pp. 2s. Amendments CF 1339, February 1939 ; CF 7030, December 1940.
The two types covered by this specification are : Type 1, Linseed oil for use in

* With local amendments.

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wooden frames ; Type 2, Gold size putty for use in metal frames. The material is described and requirements are given in respect of : skins and coarse particles ; water content ; keeping qualities ; and sampling technique. Appendices give the methods of test, and a table of dimensions of B.S. test sieves. (Type 2 has subsequently been cancelled.)

- 545 : 1934 Machine cut gears. B. Bevel (with helical, curved and straight teeth).** AS NZ 55pp. 5s. Amendment CF 7859, June 1941.

This applies to machine cut conical gears connecting intersecting shafts, the teeth being either straight, curved, helical or spiraloid, and having a pressure angle of 20°. Two classes are covered, viz. high-class, and commercial cut gears. The specification covers : definitions ; form of gear teeth and clearances ; maximum permissible pitch errors and tolerances ; strength and horse-power rating of bevel gears ; and working temperature. Appendices include data on basic surface and bending stress factors of spur and helical gears, examples of calculation, etc. Charts give data on zone, strength, speed and pitch factors ; and on allowable overloads.

- 546 : 1934 Two-pole and earthing-pin plug and socket outlets.** SA 20pp. 2s. Amendments CD 3426, June 1934 ; CD 6498, May 1935 ; CE 9577, October 1938 ; CG 409, May 1942.

This applies to 3-pin plugs and sockets as used in domestic premises, offices, etc. The main object of the specification is to ensure interchangeability, but features of design affecting safety in operation are also included. Materials to be used are described and various requirements for construction and dimensions of main parts are set out for standard ratings of 2, 5, 15 and 30A. A current breaking test is specified.

The Appendices deal with fuses in plugs, gauges, and fused socket outlet adaptors.

- 547 : 1934 Cancelled. See B.S. 1137.**

- 548 : 1934 High tensile structural steel for bridges, etc., and general building construction.** 18pp. 2s. Amendments CE 52, May 1936 ; CE 6854, February 1938 ; CG 715, June 1942. NZ SA

This relates to structural steel having a tensile range of 37 to 43 tons/sq. in. with a guaranteed minimum yield point ; it also includes rivet steel having a tensile strength of 30 to 35 tons/sq. in. It specifies process of manufacture, analysis, quality and mechanical properties of steel ; also margin over and under dimensions and weight. The tests specified include tensile and cold bend tests, and hot compression tests on rivet bars. The Appendix gives forms of standard test pieces.

- 549 : 1934 Diasetone alcohol.** SA 11pp. 2s.

The specification covers specific gravity, distillation range, flash point, and miscibility with water and includes limits for water content and acidity. Sampling and test methods are described.

- 550 : 1945 Concrete interlocking roofing tiles.** SA 16pp. 2s.

Covers the materials, pigment, colour, dimensions and tests for the type of tile indicated in the diagrams.

- 551 : 1934 Normal butyl acetate.** SA 13pp. 2s.

The specification covers specific gravity and distillation range and includes limits for residue on evaporation, acidity and ester content. Sampling and test methods are described.

- B.S.**
- 552 : 1934 Amyl acetate.** SA
13pp. 2s.
The specification covers specific gravity and distillation range and includes limits for residue on evaporation, water, acidity and ester content. Sampling and test methods are described.
- 553 : 1934 Ethyl acetate.** SA
13pp. 2s.
The specification covers specific gravity and distillation and includes limits for residue on evaporation, water, acidity and ester content. Sampling and test methods are described.
- 554 : 1934 Standard temperature of volumetric glassware, report on** SA
8pp. 2s.
The standard temperature for British Standard volumetric glassware has been fixed as 20°C. A brief account of the considerations which led to this decision is given in this report.
- 555 : 1939 Tungsten filament electric lamps (other than general service lamps).** NZ
42pp. 2s. Amendments PD 16, September 1942 ; PD 107, April 1943 ; PD 133, July 1943. See B.S. 161 and 867. Temporarily out of print.
The following types of lamp are included : gasfilled train lighting lamps ; bus lamps ; navigation lamps ; road traffic control (electric) light signal lamps ; double-capped tubular lamps. Requirements for dimensions, rating, life performance, etc., are specified and tabulated for each type of lamp. Further particulars for cap and adaptor sizes are contained in Appendices with an example of calculating deviation and variation.
- 556 : 1945 Concrete cylindrical pipes and fittings.**
28pp. 2s.
This specification covers materials and dimensions, together with testing clauses, for pipes, bends, junctions, manholes and inspection chambers for drainage purposes, and street gullies.
- 557 : 1934 Alternating-current line relays (single-element, 2-position) for railway signalling purposes.** NZ
11pp. 2s.
The relays covered by this specification are of the single-element, 2-position, induction type, intended for railway signalling circuits not exceeding 250 volts. Definitions are given and requirements laid down in respect of : mounting ; clearances ; bearings ; coils and leads ; contacts, contact resistance and clearances ; flexible connections ; terminals ; insulation ; performance ; high-voltage tests ; pick-up and drop-away voltages ; finish ; labelling and marking ; terminal markings and pointer scale.
- 558 : 1934 Nickel anodes (for electroplating).**
9pp. 2s.
The chemical composition of British Standard nickel anodes is specified, limits being laid down for the various impurities present. The Appendices describe the methods for the determination of the separate impurities, viz., silicon, copper (and lead if required), iron, cobalt, manganese, carbon and zinc ; and the method for the selection of test samples.
- 559 : 1938 Electric signs and luminous-discharge-tube installations.** SA
26pp. 2s. Amendments CE 8742, July 1938 ; CF 9086, December 1941.
The material and construction of letters or devices of metal, wood or other material are specified and thickness of glass panels is stated. Details of attachment and assemblage are given. Transformers are specified with reference to B.S. 326, and details of choking coils, resistors, casing, capacitors and special fittings are given. Wiring rules and test methods are given, with special reference to h.v. cables.

B.S.

- 560 : 1934 Engineering symbols and abbreviations, British Standard** NZ
62pp. 3s. 6d. Amendment PD 396, September 1945.

These symbols and abbreviations are those recommended for use in text books and technical papers. Amongst the 16 sections are the following : primary units, mathematics, applied mechanics, physics, thermodynamics, general engineering, materials, boilers, locomotives, structural engineering, naval architecture, water engineering and electrical engineering. A general index is included.

- 561 : 1934 Alternating-current line relays (2-element, 3-position) for railway signalling purposes.** NZ
13pp. 2s.

The relays covered by this specification are of the 2-element, 3-position, induction type, intended for railway signalling circuits not exceeding 250 volts. Requirements are laid down in respect of : mounting ; clearances ; bearings ; coils and leads ; contacts, contact resistance and clearances ; flexible connections ; terminals ; insulation ; performance ; high-voltage tests ; pick-up and drop-away values ; finish ; labelling and marking ; terminal markings ; and pointer scale.

- 562 : 1934 Reversible connectors (with earthing facilities) for portable electrical appliances.** SA
10pp. 2s.

The material, insulation and design of inlet plug, with contact tubes and flexible cord, are specified, and details of inlet socket, with shroud and pins, are given. Marking is stated and detail drawings are given.

- 563 : 1937 Land aerodrome and airway lighting.**
25pp. 2s. Temporarily out of print.

This specification deals with general principles rather than with details of construction. Part 1 covers aerodrome beacons, boundary and obstruction lights, landing area obstruction and floodlight, illuminated landing direction indicators and landing direction lights. Part 2 deals with airway beacons and obstruction lights and Part 3 with lighting for air navigation. The colour, character, emission angle and general arrangements of the lights are specified.

- 564 : 1934 Nickel ammonium sulphate and nickel sulphate for electroplating.** SA
10pp. 2s.

The chemical composition and the maximum permissible percentage of impurities (iron, copper, zinc, cobalt) insoluble matter and acidity are specified. Methods of sampling and analysis are described.

- 565 : 1938 Terms and definitions applicable to hardwoods and softwoods.**
43pp. 2s.

The definitions are grouped in seven sections as follows : the characteristics and explanatory terms, seasoning, converted timber, defects, sizes and quantities, plywood and joinery terms. A useful alphabetical index is given.

- 566 : 1934 Internally-illuminated yellow diffusing globes for traffic control signals.**
6pp. 2s.

This specification deals with material, dimensions, thickness, colour, and brightness of globe. The number of globes to be tested is given, and tests are specified for colorimetric properties and mean horizontal candle-power ratio.

- 567 : 1945 Asbestos cement spigot and socket flue pipes and fittings for gas appliances.**
30pp. 2s. Amendment PD 373, July 1945.

Covers the dimensions, straightness, and tests for pipes and fittings, showing the closest minimum and maximum dimensions that can be attained at present for the pipes and their essential fittings and components. A list of illustrations of the most suitable and frequently used fittings are included, together with notes on the correct direction of assembly and on a suitable cement for the joints.

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- 569 : 1945 Asbestos cement spigot and socket rainwater pipes, gutters and fittings.**
34pp. 2s.

This specification covers the dimensions of the pipes and fittings, their composition, workmanship and coating and includes hydraulic test for soundness, also tests for water absorption and resistance to acidic water. A bursting strength for pipes is also included.

- 570 : 1934 Plug and socket connectors for gas fired appliances.** SA
21pp. 2s.

This covers standard connectors for portable gas appliances consuming not more than 40 cu. ft./hour. The connectors are so arranged that the gas supply to the appliance can be turned on or off simultaneously with the insertion or removal of the plug. The main dimensions, quality of spring to be used, and maximum pressure drop through the plug and socket are specified and illustrated in dimensioned drawings which include details of suitable gauges.

- 571 : 1934 Distillation flasks.**
9pp. 2s. Amendment CD 5033, December 1934.

This covers standard flasks from 30 to 3000 millilitre capacity, the dimensions of the spherical bulb side tube and position of side tube being specified, tabulated and illustrated. Certain dimensions have been fixed to eliminate variables such as in fixing thermometers and to help to make results reproducible.

- 572 : 1934 Interchangeable conical ground glass joints.**
12pp. 2s.

Four types of joint are specified : full, three-quarter, half and quarter length grinding and a standard taper (1 in 10 on diameter) is prescribed. Nominal diameters of 5 to 85 mm. are covered, and methods for testing and notes on gauging added in Appendices. A scheme of size numbers for identification is recommended and a short list to cover normal requirements is suggested.

- 573 : 1934 Dibutyl phthalate.** SA
6pp. 2s.

The specification covers specific gravity and refractur index and includes limits for water, ash, acidity and ester content. Sampling and test methods are described.

- 574 : 1934 Diethyl phthalate.**
6pp. 2s.

The specification covers specific gravity and refractive index and includes limits for water, ash, acidity and ester content. Sampling and test methods are described.

- 575 : 1934 Carbon tetrachloride.** NZ* SA
11pp. 2s.

The specification covers specific gravity and distillation range and includes limits for residue on evaporation, acidity, oxidisable impurities, free chlorine and sulphur compounds. Sampling and test methods are described.

- 576 : 1934 Glacial acetic acid and dilute acetic acid.** SA
19pp. 2s.

Two specifications are provided : A. Glacial acetic acid, 99/100 per cent, and B. Dilute acetic acids, 80, 60 and 40 per cent. Each specification covers acetic acid content, and in the case of glacial acetic acid, crystallising point, and includes limits for residue on evaporation, iron, chlorides, sulphates, heavy metals, substances reducing permanganate, gormic acid, aldehydes and ketonic substances. Sampling and test methods are described.

* With local amendments.

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- 577 : 1934 Hexachlorene (hexachloroethane).** SA
10pp. 2s.
The specification covers melting range and grading and includes limits for moistures, matter insoluble in alcohol, ash and reaction to methyl orange and alkalinity. Sampling and test methods are described.
- 578 : 1934 Technical acetic acid.** SA
18pp. 2s.
Two specifications are provided : A. Technical acetic acid, 99/100 per cent, and B. Technical acetic acid, 80, 60 and 40 per cent. Each specification covers acetic acid contents and includes limits for residue on evaporation, chlorides, sulphates, heavy metals, gormic acid, aldehydes and ketonic substances. Sampling and test methods are described.
- 579 : 1934 Technical ether.** SA
12pp. 2s.
This specification covers specific gravity and distillation range and includes limits for residue on evaporation, acidity, peroxides and sulphur compounds. Sampling and test methods are described.
- 580 : 1934 Trichlorethylene (trichloroethylene). Technical and stabilised.** SA
10pp. 2s.
This specification covers specific gravity and distillation range and includes limits for residue on evaporation, acidity and free chlorine. Sampling and test methods are described.
- 581 : 1934 Electrically-driven point-operating machines for railways.** NZ
10pp. 2s.
This applies to electrically-driven machines for the operation of railway-points, derailleurs, movable diamonds, and forcing-point or fouling bars. Three types of machine are included, namely, low-voltage high-speed, low-voltage low-speed, and high-voltage (110 V.) machines. The sequence of operations is standardised, and constructional and performance requirements are given.
- 582 : 1945 Asbestos cement spigot and socket soil, waste and ventilating pipes and fittings.**
28pp. 2s.
This specification covers the dimensions of the pipes and fittings, their composition, workmanship and coating and hydraulic test for soundness, also tests for water absorption and resistance to acidic water. A bursting strength for pipes is included.
- 583 : 1934 Wooden gates.**
6pp. 2s.
The quality of timber, dimensions, allowance for dressing, method of construction, and finish are specified. The method for the determination of the moisture content of the timber is given.
- 584 : 1945 Wood trim.**
10pp. 2s.
Relates to the quality, design and dimensions of architraves, skirtings, picture rails, internal door thresholds, cover strips, quadrants, half-round beads and scotias, and specifies the quality of the timber and the dimensions.
- 585 : 1944 Wood stairs with close strings.**
6pp. 2s.
This specification relates to the quality and construction of interior stairs in softwood, for houses. It covers the proportion of steps and pitch, the width of the stairs and length of flights, the number of winders, headroom, height of handrail and construction, together with the gluing and finish.

B.S.

586 : 1935 Photoelectric cells of the emission type for sound film apparatus.

7pp. 2s.

This specification covers dimensions of cell, connections to valve bases, working voltage, colour temperature, sensitivity, maximum slope of the characteristic of the cell, maximum dark current, and frequency response.

587 : 1940 Motor starters and controllers and resistors employed therewith (excluding liquid starters and controlled and single-phase A.C. models). SA

46pp. 2s. Amendments PD 119, June 1943 ; PD 295, October 1944.

The specification covers various types of starters and associated equipment, e.g., resistors, but does not apply to starters for traction purposes nor to oil-immersed circuit-breakers. For liquid starters see B.S. 140. Various definitions are given ; standard voltages are listed ; mechanical and electrical tests are prescribed for the different types and for 3 ratings, ordinary, intermittent and frequent duty. Appendices include notes on temperature measurements, service conditions, and clearances.

588 : 1935 Grading for plywood (veneered with oak, mahogany, walnut, teak, and other ornamental woods).

6pp. 2s.

Various defects and terms used in describing plywood are defined and standard sizes and thicknesses, with tolerances, specified. Four grades of plywood are covered.

589 : 1935 Nomenclature of softwoods (including botanical species and sources of supply). 26pp. 2s.

This comprises a table giving the various names of different woods together with the standard names and the botanical species with a column indicating the countries which are the sources of supply. An alphabetical index is included.

590 : 1935 Electrically welded mild steel chain short link and pitched or calibrated.

12pp. 2s.

In addition to short link chain this specification provides for pitched or calibrated load chain for use with pocketed sheaves and for other purposes. Sizes of chain (in terms of the diameter of bar from which it is made) from 6 S.W.G. (0.192 in.) to $1\frac{1}{2}$ in. are included and two grades are distinguished, standard and special. Quality of material, dimensions and weight, and workmanship, are specified. Details of the testing machine and requirements for elongation, breaking strength and up-ending tests are given. A form for a test certificate is added.

591 : 1935 Wrought iron and mild steel hooks of the ' C ' or Liverpool type.

13pp. 2s. Amendments CE 2780, February 1937 ; PD 327, January 1945.

Provides for the special type of hook used in the unloading of ships, in cargo handling and in building operations. Sizes are given for working loads from 1 to 10 tons. Notes on design are included and rating, quality of material and form and dimensions are specified. Workmanship, heat treatment and load tests are described and a form for test certificate is given.

592 : 1940 Carbon steel castings for ships and for marine engine and general engineering purposes.

11pp. 2s. Amendment CF 7375, February 1941.

Three grades are distinguished. Process of manufacture is stated and chemical analysis prescribed for the two higher grades. Other requirements relate to heat treatment, dressing and preparation of test samples. Test requirements for tensile, bend, drop and hammering tests, together with rules for branding, repairs and inspection.

B.S.

- 593 : 1940 General purpose laboratory thermometers.** 16pp. 2s. Temporarily out of print. NZ SA

The specification provides for four series of laboratory thermometers : A, Divided to 0.1° C. or 0.2° F. covering ranges of 30° C. or 60° F. ; B, divided to 0.2° C. or 0.5° F. covering ranges of 60° C. or 110° F. ; C divided to 1° C. or 2° F. covering ranges of 100° C. or 200° F. and without zeros ; D covering complete ranges of temperature from zero to various maximum temperatures up to 400° C. or 750° F., and E similar to series B but without zeros. In each series thermometers graduated for total immersion, and thermometers graduated for partial immersion are included for each temperature range. Full constructional details are given with tolerances.

- 594 : 1945 Rolled asphalt. Asphaltic bitumen and fluxed lake asphalt. Hot process.** 23pp. 2s.

The specification is in two parts. Part 1 covers single course and Part 2 two course work. The properties of the asphaltic cement, quality of the aggregate (filler, sand and stone) and the composition of the mixtures are given. Methods of laying and jointing and methods of sampling and testing are specified. Methods of testing stone for abrasion, impact and crushing resistance, and for water absorption, are added in the Appendices.

- 595 : 1935 Rolled asphalt. Fluxed natural asphalt and asphaltic bitumen. Hot process.** SA 30pp. 5s. Temporarily out of print.

The specification covers four types, namely two-coat and single-coat asphalt, in either case with sand or sand and stone aggregates, or with crusher-run aggregates. Gauges and sieve dimensions and methods of laying are given and properties of asphaltic cement are tabulated. Joints and sampling and testing methods are specified. The quality of material and composition of mixture is given for the various types, methods of mixing are described and sieve dimensions are tabulated. Methods for testing stone for abrasion, impact and crushing strength, and for water absorption, are added.

- 596 : 1945 Mastic asphalt for roads and footways.** 14pp. 2s.

The specification is in two parts. Part 1 covers mastic asphalt surfacing with natural rock asphalt aggregate and Part 2 covers mastic asphalt surfacing with limestone aggregate. The properties of asphaltic cement and the quality of the aggregate are given. Details covering the preparation of the mastic and the method of laying including thickness, crossfall, finish of surfacing and joints are also included.

- 597 : 1935 Mastic asphalt surfacing. Fluxed natural asphalt and asphaltic bitumen. Hot process.** SA
13pp. 2s.

The specification covers mastic asphalt surfacing with limestone and with natural rock asphalt aggregates. Gauges and sieve dimensions are given and properties of asphaltic cement are tabulated. Coat thickness and crossfall are specified and methods of laying and jointing and of sampling are described. Details of aggregates and of preparation of mastic are given.

- 598 : 1940 Sampling and examination of bituminous road mixtures, methods for the** 41pp. 3s. 6d.

Sampling methods before and after laying are given for wearing-surface, asphaltic concrete, rock asphalt, mastic asphalt and tarmacadam. Information to be supplied with the sample is specified. Methods of examination are given with regard to pat stain test, specific gravity, voids, soluble bitumen content and a method for recovery of bitumen for subsequent examination is described. Tests for water content of asphalt and tarmacadam are given and tests on mineral aggregates are specified. A suggested form of certificate is included.

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- 599 : 1939 Pump tests.** AS NZ SA
42pp. 3s. 6d. Amendment PD 368, June 1945.
This contains particulars of methods to be adopted for finding the performance and efficiency of water pumps including centrifugal pumps. Attention is given to general precautions, operating conditions and measurements of discharge including sections on types of weirs, venturi meters, pilot tubes, etc. Terms used are defined, methods of measuring head and power input are set out ; the tables give figures for discharge over 90° and half 90° Vee notches. A typical test sheet is included in the Appendices.
- 600 : 1935 Application of statistical methods to industrial standardisation and quality control.**
By Dr. E. F. PEARSON. Under revision.
- 600R : 1942 Quality control charts.**
By B. P. DUDGING, M.B.E., Ph.D., AND W. J. JENNETT, B.Sc. (Eng.).
85pp. 2s. 6d. Amendment CG 432, May 1942. See B.S. 1008.
This is a handbook describing the construction and use of control charts. This is the minimum essential to the utilisation of statistical methods in the planning of inspection and testing procedures, and in the study of the results which are aimed at securing control of the quality of quantity-produced articles. It covers both qualitative testing, i.e., inspection for defects, and quantitative testing, i.e., inspection by measurement. Simple problems are discussed in the text and the Appendices, to assist in the acquisition of the ability to interpret fully the results recorded on control charts.
- 601 : 1935 Steel sheets for transformers for power and lighting.** AS NZ SA
16pp. 2s.
Two sheet sizes are specified with tolerances on width, length, and thickness, and tests are prescribed for space factor, brittleness, losses for 3 grades of sheet and permeability. Test procedure and formulae are included in the Appendices.
- 602 : 1939 Lead pipes for other than chemical purposes.** NZ SA
11pp. 2s. Amendments CF 7356, June 1941 ; PD 426, November 1945.
The specification covers pipes from $\frac{3}{8}$ in. to 6 in. internal diameter. The chemical composition, grain structure, minimum weight per linear yard for the various sizes and for particular applications, turn pin test, and marking are specified. Details of the method of etching lead pipe are given. A war emergency amendment specifies economies to be made in the use of lead by the reduction of thickness of pipe used.
- 603 : 1941 Lead pipes, B.N.F. ternary alloy (No. 2).**
15pp. 2s.
This specification covers pipes from $\frac{3}{8}$ in. up to 6 in. internal diameter. The chemical composition, quality, uniformity of grain size, minimum weight per linear yard for various sizes of pipe and for particular applications, turn pin or drift test, and marking are specified. Details of the method of etching lead pipe are given.
- 604 : 1935 Graduated measuring cylinders.** SA
12pp. 2s.
Provides for stoppered and unstoppered cylinders of 5, 10, 25, 50, 100, 200, 250, 500, 1000 and 2000 ml. capacity. Full dimensions and tolerances are specified together with details of scales and graduation.
- 605 : 1935 Crow receivers.**
11pp. 2s.
Stoppered and unstoppered crow receivers of 25, 50 and 100 ml. capacities are covered. The dimensions of the receivers are specified with full details as to graduation. Two sets of tolerances are provided, class A for receivers designed to possess the highest accuracy and class B for ordinary grade receivers for commercial work.

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606 : 1935 Plaited sash lines.

SA

10pp. 2s.

This specification covers 3 grades of material and various sizes of threads, line and finished lengths are required. The tables of standard sizes also give weights of lines and minimum breaking loads. Appendices cover methods of test including tensile test, and specify lines for various weights of sash. Pulley dimensions are also stated.

607 : 1935 Reinforced concrete poles for electrical transmission and traction supports.

10pp. 2s.

This specification applies to poles for electrical transmission and traction lines, as well as for telegraph and telephone lines ; it does not apply to lamp standards. Seven classes of pole are provided for, giving a range of strengths corresponding to ultimate transverse loads up to 7000 lb. Requirements for the cement, aggregate, composition and preparation of the concrete, curing, reinforcement, standard lengths and loadings of poles are stated. Type and routine tests of poles are specified. The Appendix gives the standard method of test for consistence of concrete.

608 : 1943 Dimensions and testing of metal-sheathed or braided varnished cambric insulated annealed copper conductors for electricity supply.

28pp. 2s. Amendments PD 120, June 1943 ; PD 333, February 1945.

This specification covers cables of the following voltages : 660, 3300, 6600 and 11000 volts, but does not deal with the composition, quality or durability of the insulating material. Standards for the physical properties of copper are given, followed by standard sizes of stranded conductors, tolerances on standard resistance, and variation of resistance with temperature. Thickness of insulation and of metal sheath is specified, as well as the requirements for bedding, armouring, serving and braiding.

609 : 1935 Multitubular horizontal boilers (dryback and waste heat).

50pp. 2s. Amendment CF 2734, November 1939 (incorporating previous amendment).

Deals with the materials, construction, workmanship, scantlings, inspection and testing of multitubular horizontal boilers. Materials specifications are included for plates, rivets and bars and for tubes. The rules in regard to workmanship and construction deal with the plates, cylindrical shells, butt straps, flues, angle rings, stays, manhole mouthpieces and doors, seatings for mountings, doubling plates and compensating rings, rivet holes and riveting. The rules for scantlings include formulæ for determining the thickness of shells, butt straps, flat end plates, furnace and flue sections and shell angle rings together with formulæ for the calculation of the efficiency of riveted joints and for the pitch and spacing of rivets. Breathing space and stays, including stay tubes, are dealt with together with tube plates and tubes. Inspection during construction is also specified together with details of the hydraulic test.

610 : 1935 The rating of rivers for power purposes.

SA

11pp. 2s.

Units and methods of computation of power, head, rate of flow and storage are given, with additional reference to developed power. Further explanatory notes are added, with diagrams. This specification is in agreement with the recommendations of the International Electrotechnical Commission.

611 : 1940 Petri dishes.

SA

7pp. 2s.

Requirements are laid down in respect of the glass from which the dishes shall be made, of dimensions and tolerances, finish of edges, flatness of base of both and bottom dish, and inscriptions.

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- 612 : 1935 Nessler cylinders** SA
7pp. 2s.
Two sizes, 100 and 50 ml., are covered and the dimensions of the receivers are specified with particulars as to graduation and tolerances on capacity.
- 613 : 1940 Components for radio-interference suppression devices (excluding devices for traction, marine and other special equipment).** SA
36pp. 2s.
The specification gives standard ratings and safety requirements for general components of suppression devices. Capacitors are considered in 3 classes, according to position and voltage rating. Design, construction and testing methods are described. Resistors and inductors are specified and requirements of fuses are stated. Notes on the principles of suppression, shock and leakage, maximum capacitances, and suggested values of components for various types of interference, as well as wiring and maintenance, are added.
- 615 : 1936 Kohlrausch flasks.** SA
10pp. 2s.
Three sizes 50, 100 and 200 ml. are covered together with three additional sizes for beet sugar laboratories. The dimensions of the flasks are specified with particulars as to graduation. Two sets of tolerances are provided, class A for flasks designed to possess the highest accuracy and class B for ordinary grade flasks for commercial work.
- 616 : 1938 Sampling of coal tar and its products.** NZ
24pp. 2s.
Special precautions with regard to sampling and handling are given and sampling tubes, cans, swops and agitators are described. Methods of sampling from various kinds of tanks and from pipe lines and details of continuous sampling are specified. A classification of products is given and the methods of drawing and preparing samples are described.
- 617 : 1942 Identification of pipes, conduits, ducts and cables in buildings.**
7pp. 2s.
This specification sets out the basic colours and identification letters for a wide range of services. The size of lettering and application of the system is also specified.
- 618 : 1935 Emulsions of road tar and of road tar-asphaltic bitumen mixtures for penetration (grouting and semi-grouting) and surface dressing.**
24pp. 2s. Temporarily out of print.
The composition of the emulsion is specified and the quality of tar is stated with reference to B.S. 76. The properties and proportion of emulsifying agent are given and water content, residue on sieving, coagulation properties, stability, viscosity and sedimentation are specified. Sampling and test methods are described.
- 619 : 1935 Laboratory incubator, water bath and oven thermometers.**
9pp. 2s.
Provides for thermometers of 20° to 60°C., 30° to 75°C., 65° to 125°C., and 115° to 180°C. temperature ranges. Full dimensions and tolerances are specified together with particulars of graduation and figuring.
- 620 : 1935 Dimensions of grinding wheels and method of attachment.**
19pp. 2s. Temporarily out of print.
Deals with the dimensions and tolerances of plain disc, cylindrical, double-sided taper, internal, straight cup, taper cup, countersunk dovetail, dish and saucer (or saw gummer) grinding wheels. Four standard flanges are specified together with the material requirements for flanges and spindles.

B.S.

- 621 : 1935 Wire ropes of special construction for engineering purposes, inclusive of cranes, lifts, and excavators.**
35pp. 2s.
The specification provides for wire ropes of 5 × 27, 28 or 29 oval strand, 6 × 19 Seale, 17 × 7, 6 × 27 flattened strand, and 34 × 7 construction of special acid and acid qualities. Ropes of from 1 1/2 to 6 in. circumference made from wire ranging from 80 to 120 tons per sq. in. tensile breaking strength in steps of 10 tons per sq. in. are included. Full testing requirements are specified together with rope breaking strengths.
- 622 : 1935 Cyanides (classes A and B) suitable for electroplating.**
19pp. 2s.
Covers 5 specifications as follows :
Potassium Cyanides, single salt, 96/99 per cent.
Potassium Cyanides, single salt (grey) 91/92 per cent.
Sodium Cyanides, single salt, KCN values 128/130 per cent.
Cyanides, double salt (sodium and potassium) KCN value, 98/100 per cent.
Sodium cyanides, KCN value, 98/100 per cent.
Each specification covers chemical composition and impurities, sampling, and test methods are described.
- 623 : 1940 Colours for signal glasses for railway purposes.**
12pp. 2s.
This covers colorimetric and photometric requirements for all railway signal glasses and limits for colour quality are included and illustrated by a curve. Methods of tests are described.
- 624 : 1935 Plano-convex (bullseye) lenses.**
5pp. 2s.
A table gives the diameter corresponding to the item number of the lens ; also the nominal focal distance and the limits of tolerance on the measured focal distance. The tolerance on diameter is specified, together with range of thickness of edge of rim, colour, measurement of transmission, and finish of lens.
- 625 : 1935 Bacteriological test tubes, Durham fermentation tubes and Dreyer agglutination tubes.**
7pp. 2s.
Covers Durham tubes of 27, 35 and 50 ml. capacities and bacteriological test tubes of 76, 127 and 152 ml. capacities. The specification includes full dimensions and tolerances.
- 626 : 1935 Micanite for commutator separators.** AS
9pp. 2s.
The quality of material is stated and bond content, stability under heat and pressure and electric strength are specified. Limits of variation in thickness are given and testing methods are described.
- 627 : 1935 Sampling of fats and fatty oils in packages or in bulk.** NZ
11pp. 2s.
Deals with the sampling of liquid or semi-solid oils in bulk in tanks, oil in course of trans-shipment from one tank to another, oil or solid fat in small tanks, drums, barrels, and other small packages, and loose solid fats. Method of collection and reduction are specified together with suitable forms of sampling instruments.
- 628 : 1935 Coconut oil.**
20pp. 2s.
The specification covers moisture content, colour, refractive index, iodine value, saponification value and acidity. Sampling methods and methods for testing the specified properties are described.

B.S.

629 : 1935 Ground nut oil.

21pp. 2s.

The specification covers colour, specific gravity, refractive index, iodine value, saponification value and acidity. Sampling and test methods are described.

630 : 1935 Olive oil.

20pp. 2s.

The specification covers colour, specific gravity, refractive index, iodine value, saponification value and acidity. Sampling and test methods are described.

631 : 1935 Rape Seed Oil.

19pp. 2s.

The specification covers colour, specific gravity, refractive index, iodine value, saponification value, acidity, unsaponifiable matter, viscosity and flash point. Sampling and test methods are described.

632 : 1935 Raw linseed oil for general purposes.

21pp. 2s.

The specification covers colour, specific gravity, refractive index, iodine value, saponification value, acidity, drying time, and unsaponifiable matter. Sampling and test methods are described.

633 : 1935 Cotton tapes and webbing for electrical purposes (other than the manufacture and jointing of cables). AS

17pp. 2s.

Two classes of tape and two classes of webbing are recognised as standard. Requirements regarding weave, standard widths, kind and count of yarn, number of ends and number of picks per inch, thickness and weight, tensile strength, and length of roll are included. Methods of test are described.

634 : 1935 Finishing air-drying insulating varnish for electrical purposes. AS

13pp. 2s.

The specification covers two types of air-drying moisture-resisting finishing varnish which shall be suitable for coils, armatures and the like, viz., varnish with methylated spirit solvent, and varnish with non-alcoholic solvent. Requirements are stated in respect of finish, volatile matter, specific gravity, viscosity, drying time, electric strength in damp atmosphere at 20° C, ageing, and flash point. The methods of test are given in the Appendices.

635 : 1935 Thermal-type time-element relays (alternating or direct current) for railway signalling. NZ

7pp. 2s.

This specification covers auxiliary 'making' relays capable of giving a delay of at least 5 seconds and for use on circuits where the voltage does not exceed 30V. Particulars regarding surface leakage, insulation, contacts, contact clearances, and terminals are specified. Performance tests and a high voltage test are prescribed.

636, 637 : 1935 Included in B.S. 239.

NZ SA

638 : 1941 Electric arc welding plant and equipment.

18pp. 2s. Amendment PD 97, April 1943.

The specification covers both D.C. and A.C. equipment. Open-circuit voltage and rating of generators, motors, reactors, resistors and transformers are specified. Earthing and protection is dealt with and flexible cables, isolating devices, electrode holders and screens and other protective devices are specified. Information to be given on rating plates is stated.

B.S.

- 639 : 1935 Covered electrodes for metal arc welding wrought iron and mild steel.** SA
8pp. 2s.
Four classes are specified which vary according to the mechanical properties obtained from all-weld-metal test pieces. Dimensions are given and the covering is described. Methods of obtaining an all-weld-metal test piece are given.
- 640 : 1935 Bare rod or wire electrodes for metal arc welding wrought iron and mild steel.** NZ SA
9pp. 2s.
Three classes of rod are specified, according to the tensile strength of the iron or steel to be welded. The chemical composition, size and quality of the electrodes are laid down and methods of obtaining an all-weld-metal test piece are described.
- 641 : 1935 Small rivets (ferrous and non-ferrous, of nominal diameter below $\frac{1}{2}$ in.) for general purposes, dimensions of**
13pp. 2s. Amendment CE 2070, December 1936.
Nominal diameter and length are defined with permissible variations in shank diameter, followed by tables of standard dimensions for various types such as snap, pan, mushroom, flat, and various countersunk headed rivets. A table of stock lengths is included.
- 642 : 1935 Carbide of calcium (graded sizes).**
20pp. 5s. Temporarily out of print.
Eight sizes of grading are specified. Test requirements for dust, gas yield and impurities are stated and methods of sampling and testing are specified. Conditions of sale and purchase as established by the British Acetylene Association are given.
- 643 : 1935 Capping metal for steel wire ropes.**
9pp. 2s.
The quality and chemical analysis of tin-antimony-lead capping metal for colliery and general engineering wire ropes are specified. A recommended method of socketing is described in an Appendix.
- 644 : Part 1 : 1945 Wood windows and casement doors.**
25pp. 2s. Amendment PD 389, August 1945.
This specification covers the types and sizes and construction of casement windows and casement doors, including frames, designed to fit the dimensions of brick openings determined by brick sizes laid down in B.S. 657, i.e., heights in multiples of 3 in. and widths in multiples of $4\frac{1}{2}$ in. It also deals with the hinges and fittings, and with the finish.
- 645 : 1935 Cupboard fronts and dressers.**
11pp. 2s. Temporarily out of print.
This specification covers dimensions, details of construction, quality of timber and plywood, allowance for dressing, gluing, finish, and priming. The method for the determination of the moisture content of timber is described.
- 646 : 1935 Ordinary-duty 250-volt cartridge fuses (rated up to 5 amperes) for A.C. and D.C. service.** AS* NZ SA
8pp. 2s. Amendment PD 231, March 1944, superseding previous amendment.
Rated currents, dimensions, markings, and performance tests are specified for two types, viz., A for use in plugs and B for use in circuits requiring a closer measure of control. A testing case and a test circuit are illustrated.
- 647 : 1938 Testing for glues (bone, skin, and fish glues), methods of**
27pp. 3s. 6d. Amendments PD 165, September 1943 ; PD 434, December 1945.
Methods of determination of moisture content, jelly strength, viscosity, melting point, foam, water absorption, keeping quality, joint strength, pH, grease, ash, chloride and sulphur dioxide are given together with full details as to the sampling of glues in all forms and the preparation of laboratory samples.

* With local amendments.

B.S.

- 648 : 1935 Unit weights of building materials, schedule of** SA
30pp. 2s.
The schedule standardises the data employed for calculations in order to avoid the confusion which arises when comparing calculations based on differing data. The 'standard' unit weight of a material in the schedule is not necessarily the mean between the extreme weights for that material but a fair approximate average. The schedule contains the unit weights of the usual building materials employed. More detailed information on some of the materials is given in the appendix, together with gauge tables. An index of all the materials covered by the schedule is included.
- 649 : 1935 Internal combustion engines for stationary and industrial purposes and auxiliary purposes on shipboard, excluding carburettor-type engines.** NZ SA
14pp. 2s. Amendment CE 682, June 1936.
This specification applies to gas engines and heavy-oil engines, and conditions for rated output, speed, overload, and governing, are prescribed. Cyclic irregularity is defined and a permissible maximum for engines direct-coupled to electrical generators is given, with notes on torsional control speeds, and angular deviation of A.C. generators run in parallel.
- 650 : 1936 Castor oil ('firsts' quality).** SA
23pp. 2s.
The specification covers colour, specific gravity, refractive index, iodine value, saponification value, critical solution temperature in alcohol, acidity, unsaponifiable matter, and acetyl value. Sampling and test methods are described.
- 651 : 1936 Crude maize oil.** SA
19pp. 2s.
The specification covers colour, specific gravity, refractive index, iodine value, saponification value, acidity, unsaponifiable matter, and sampling. Sampling and test methods are described. This specification does not provide for oils which are considerably decomposed as a result of recovery after fermentation process ('fermentation maize oil').
- 652 : 1936 Crude palm kernel oil.** SA
18pp. 2s.
The specification covers moisture content, colour, refractive index, iodine value, saponification value and acidity. Sampling and test methods are described.
- 653 : 1936 Crude soya bean oil.** SA
20pp. 2s.
The specification covers moisture content, colour, specific gravity, refractive index, iodine value, saponification value, acidity and unsaponifiable matter. Sampling and test methods are described.
- 654 : 1936 Perilla Oil.** SA
20pp. 2s.
The specification covers moisture content, colour, specific gravity, refractive index, iodine value, saponification value, acidity and unsaponifiable matter. Sampling and test methods are described.
- 655 : 1936 Refined cotton seed oil.** SA
19pp. 2s.
The specification covers colour, specific gravity, refractive index, iodine value, saponification value, acidity, and unsaponifiable matter. Sampling and test methods are described.

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656 : 1936 Sesame oil.

21pp. 2s.

The specification covers identity tests, colour, specific gravity, refractive index, iodine value, saponification value, acidity, and unsaponifiable matter. Sampling and test methods are described.

657 : 1941 Common building bricks, dimensions of†

7pp. 1s.

This specification standardises the dimensions of building bricks made of clay, sandlime, concrete, and composition. It is applicable both to machine made and hand-made bricks. The dimensions of snap headers and closers are also given.

658 : 1936 Distillation apparatus.

NZ

15pp. 2s.

The component parts and the assembly of the apparatus are specified and four types of condenser are provided. By making suitable choice in the assembly of the component parts specified, adequate provision may be made for a wide range of distillations including many of industrial importance.

659 : 1944 Light gauge copper tubes.

8pp. 2s.

This specification relates to copper tubes for connection by compression fittings or capillary fittings or by bronze or autogenous welding. The standard dimensions are given for water and gas tubes from $\frac{1}{8}$ in. to 4 in. nominal size, these being suitable for working water pressures up to 220 lbs. per sq. inch in the case of tubes up to 2 in. nominal size and 150 lbs. per sq. inch for larger sizes. Tubes for sanitation are standardised in nominal sizes from 1 in. to 4 in.

The quality of the tubes is standardised by reference to B.S. 1172 and 1174. Hydraulic pressure tests and simple mechanical tests are included. An appendix gives the approximate weights per foot of the tubes.

660 : 1936 Colliery belt fasteners.

10pp. 2s. Amendment CE 1862, December 1936.

Provides for one-piece, two-piece, three-piece and multi-piece, fasteners. Full dimensions are given, together with the minimum number of rivets to be used and a material specification for the steel plate used in the manufacture of the fasteners.

661 : 1936 Acoustical terms and definitions, glossary of

33pp. 3s. 6d. Leaflet CD 9743 on noise abatement is included.

The glossary is arranged in sections under the following headings : sound vibrations and wave propagation ; hearing and noise, architectural acoustics, transmission systems and instruments, and also musical terms. A list of the symbols referred to in the glossary is given in the Appendix. A complete index of all the terms covered by the glossary is included.

662 : 1936 Carbon disulphide.

SA

13pp. 2s.

The specification covers specific gravity and distillation range, and includes limits for residue on evaporation, acidity and hydrogen sulphide. Sampling and test methods are described.

663 : 1936 Ethyl lactate.

SA

15pp. 2s.

The specification covers specific gravity, distillation range, ester content, and miscibility with petroleum ether and water, and includes limits for residue on evaporation and acidity. Sampling and test methods are described.

† War emergency issue.

B.S.

- 664 : 1936** Cast iron shaft couplings, rigid flanged type with recessed bolt-heads and nuts (including recommended limits on diameters of line shafting used therewith).
9pp. 2s.

All essential dimensions are given for couplings for shaft diameters from $\frac{3}{4}$ in. to 4 in. inclusive. The cast iron is to be in accordance with B.S. 321, grade A, and the steel for the bolts and nuts to B.S. 32, grade 2 ; key ways to be as laid down in B.S. 46. Limits are given for the diameter of the associated shafting.

- 665 : 1936** Vertical cross tube boilers.
48pp. 3s. 6d. Amendment CF 2729, November 1939.

Deals with the materials, construction, workmanship, scantlings, inspection and testing of vertical cross tube boilers. Material specifications are included for steel plates, rivets and bars, and for finished weldless steel and lapwelded steel cross and uptake tubes. The rules in regard to workmanship and construction deal with the plates, cylindrical shells, butt straps, crown plates, fire boxes, cross tubes and uptakes, stays, angle rings, compensating rings, doubling plates, rivet holes and riveting. The rules for scantlings include formulae for determining the thickness of shells, butt straps, crown plates, uptakes and fire boxes together with formulae for the calculation of the efficiency of riveted joints and for the pitch and spacing of rivets. Cross tubes and stays are dealt with together with seatings for mountings. Inspection during construction is also specified together with details of the hydraulic test.

- 666 : 1936** Inlet and outlet connectors for radio circuits.

13pp. 2s. Amendment CE 7551, April 1938.

This specification is intended to be used for low-voltage radio circuits. Section 1 deals with single- and multi-pin connectors, and Section 2 deals with plugs and jacks. In each case dimensions and tests are laid down.

- 667 : 1945** Photoelectric type portable photometers.

10pp. 2s.

Covers requirements in which the test surface embodies a rectifier photoelectric cell. Specifies the effective range, the scale and figuring, the effect of temperature and of colour of the light source and the limits of error permissible.

It requires the test surface to be such that the indications shall be as nearly as possible independent of the angle of incidence. Certain general requirements as to design and external finish are also included.

- 668 : 1936** Laminated synthetic resin bonded sheet (fabric base) for use as gear material.

14pp. 2s.

AS*

The specification covers one grade of sheet $\frac{1}{8}$ to 4 in. thick, of medium to high mechanical strength and wearing properties. The finish is stated and test requirements for tensile, compression, cross-breaking and machining tests are given. Water absorption and effect of hot oil are specified and methods of measuring and testing described.

- 669 : 1936** Flexible metallic tubing and connectors for portable gas appliances.

24pp. 2s.

The quality of the steel and other materials to be used are prescribed with requirements relating to workmanship, finish and mechanical tests. Various dimensions for the tube and connectors are tabulated and illustrated including details of suitable inspection gauges. Appendices deal with methods of test for the rubber, and for galvanizing and gauging.

- 670 : 1936** Welded mild steel drums.

11pp. 2s.

The specification covers three classes of drums, for non-corrosive liquids of sp. gr. 1.00, for non-corrosive liquids of sp. gr. between 1.00 and 2.00, and for corrosive liquids of sp. gr. 2.00. Seventeen sizes of drums are specified from 5 to 150 gal.

* With local amendments.

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capacity. The quality of material and dimensions of the drums are stated. The method of construction and details of body and ends, closure, outlet and fittings are given. Testing, finish and marking are specified.

671 : 1936 Dimensions of segments for grinding wheels.

7pp. 1s.

This specification shows two shapes of segments in common use and gives tables of dimensions for each shape.

672 : 1936 Hard-drawn cadmium-copper solid and stranded circular conductors for overhead power transmission.

15pp. 2s. Amendments CE 688, June 1936 ; CF 8967, November 1941 ; CG 778, July 1942.

Physical properties and details of manufacture are prescribed. Tables include figures for increase of length due to stranding, numbers of strands, areas, weights resistances, tolerances, etc. Lapping and tensile tests are prescribed.

673 : 1936 Pneumatic tools and accessories.

18pp. 2s. Amendment CE 845, August 1936.

The dimensions of shanks of drills, picks, spades, chisels, stone tools and rivet snaps are given, with illustrations. The specification includes a comprehensive series of definitions relating to rock drills, pneumatic hand tools and other pneumatic appliances.

674 : 1942 Rubber joint rings for water mains and sewers.†

NZ

7pp. 2s. Amendment PD 325, January 1945.

Covers soft, medium and hard grades of rings. The materials are specified and hardness, water absorption, ageing and tensile test requirements given. Construction, workmanship and sampling for testing are described and rules for marking and forms of manufacturers' certificate given. Methods for determining hardness and water absorption are described.

675 : 1936 Sugar flasks.

SA

12pp. 2s.

This specification provides for two types of flask for use in sugar analysis, viz. :

1. A doubly graduated type suitable for the analysis of sugar factory juices. Three standard sizes are specified, namely, 50 ml./55 ml., 100 ml./110 ml. and 200 ml./220 ml. capacity respectively.

2. A singly graduated type, of greater accuracy, suitable for the polarisation of sugars, namely the Mann 100 ml. flask. The dimensions of the flasks are specified with tolerances and particulars as to graduation.

676 : 1936 Flasks with graduated necks, three special

SA

12pp. 2s.

This specification includes a 45 ml. flask with 5 ml. scale for use in the polymerisation test for turpentine, a 150 ml. flask with 10 ml. scale for use in the official method of the Society of Public Analysts for the determination of phenols in essential oils, and a 200 ml. flask with 25 ml. scale in line with the standardisation of Tar Products Tests Committees' tar acids flask except that a conical bulb is specified. The dimensions of the flasks are specified with tolerances and particulars as to graduation.

677 : 1942 Motion picture films.

AS

26pp. 2s. Amendment PD 156, September 1943.

This specification is in three parts, covering 35 mm. film, 16 mm. film (sound and silent), and 8 mm. film respectively. Each part specifies the dimensions of the film, size and position of frames and frame line, film speed, position of sound record relative to the picture aperture (except for 8 mm. film), position of emulsion

† War emergency issue.

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(except for 35 mm. film), cores and projection reels. Tables of standard dimensions with diagrams are set out in the appendix, together with notes on the position of sound track on 35 mm. film.

- 678 : 1936 Carboys and carboy hampers.** SA
9pp. 2s. Amendment PD 251, May 1944.

The dimensions of 10-gallon carboys and of steel strip carboy hampers are specified, together with details of construction.

- 679 : 1936 Protective glass for welding and other industrial purposes.** SA
8pp. 2s. Amendment CF 6501, August 1940.

Five grades of eye-protective glass are specified, according to application. The quality of glass and the optical requirements are stated, testing is specified and dimensions of glass and goggles are given.

- 680 : 1944 Roofing slates.**

10pp. 2s.

The revision of this specification was undertaken primarily to extend the scope in order to deal with slates from the Cambrian, Ordovician, Silurian, Devonian and Dalradian formation, whereas the original edition dealt only with the first two of these.

Advantage has been taken of the revision to introduce more complete requirements in respect of the characteristics of slates and to lay down standard designations, thickness gradings and marketing descriptions. In addition, the testing procedure has been modified so that appropriate series of tests, relating to the conditions of the atmosphere in which the slates will be installed, may be required.

The appendices describing sizes have been omitted as the extended scope made it impracticable to give details in respect of all slates ; instead, a revised appendix gives the standard lengths, together with the appropriate standard widths, produced by most slate quarries together with notes on randoms and peggies.

- 682 : 1936 3 per cent nickel chromium case-hardening steel.** SA
10pp. 2s.

Chemical composition, manufacture, and mechanical tests are prescribed, and selection and preparation of material for mechanical tests are dealt with. Standard sizes and tolerances for black rolled steel bars (for machinery purposes), and sizes of standard round tensile test pieces are given.

- 683 : 1936 Alkaline train-lighting accumulators.**
20pp. 2s.

This specification states the basis of rating, and prescribes materials and construction, performance, and acceptance tests. The Appendices give details of the method of determining internal resistance, and a table of variations of specific gravity with temperature of electrolyte.

- 684 : 1936 Analysis of fats, standard methods for the (internationally agreed).** NZ
26pp. 3s. 6d. Temporarily out of print.

These methods have been prepared by the International Commission for the Study of Fats, whose statutes are reproduced in the Appendix, and have been agreed internationally. The methods refer to the following determinations : moisture and volatile substances, impurities, ash, unsaponifiable matter, acidity, saponification value, iodine value, density, and refractive index.

- 685 : 1937 Trade headings and specification items for building work, sequence of**
19pp. 2s. Temporarily out of print.

A standardised order for the various trades is set out together with a standardised order for certain key headings belonging normally and naturally to these trades,

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with a view to facilitating the tracing of items in any specification for building work, and to reducing the chance of omission.

- 688 : 1936 Bituminous filling compounds for electrical apparatus.** SA
39pp. 2s. Temporarily out of print.
This applies to fluid, plastic and hard bituminous compounds which may be subjected to electrical stress in service in electrical apparatus other than cable boxes. Oils and oil-resisting compounds are excluded. The compounds are classified according to softening point, and physical and electrical tests are described.
- 689 : 1936 Railway mechanical signalling apparatus (signal posts, semaphore signals, fittings and connections, and point connections and fittings).**
11pp. 2s.
The requisite standard of workmanship is specified, and the appropriate B.S. specifications for the various materials employed are tabulated. Requirements are scheduled for : signal chains ; bolts and nuts ; bushes ; tolerances on diameters of pins, studs, holes and bushes ; signal spectacle glasses ; galvanising ; protection and painting ; interchangeability ; provision for testing and inspection. The Appendix gives the test for quality of galvanised coatings. Standard drawings of the various fittings are not included in the present specification, but will be issued separately.
- 690 : 1945 Asbestos-cement slates and unreinforced flat sheets and corrugated sheets.**
22pp. 2s.
This specification covers slates and unreinforced flat and corrugated sheets, both straight and curved, and specifies the dimensions and tolerances, the composition and colouring matter and the tests that should be carried out to ensure conformity with the specification.
- 691 : 1936 Clinical maximum thermometers.** AS* NZ
9pp. 2s.
Details of construction, dimensions, temperature, range and graduation are given and tolerances are stated.
- 692 : 1936 Meteorological thermometers (maximum, minimum and ordinary), sheathed type.**
12pp. 2s. Amendment PD 264, July 1944.
Provides for sheathed type meteorological thermometers suitable for mounting in a Stevenson screen of the pattern employed by the Meteorological Office, Air Ministry. Material, construction and graduation are specified and a table of details of dimensions and maximum errors is given. A table of glasses approved by the N.P.L. is added.
- 693 : 1940 Oxy-acetylene welding in mild steel.**
24pp. 2s.
Method of welding and forms of welded joints are described and details of butt and fillet welds are given. Stresses, workmanship and flame conditions are specified and bend and inspection tests described. Specifications for filler metal are given and notes on design of joints are added.
- 694 : 1936 Included in B.S. 272.** NZ*
- 695 : 1936 Floating dairy thermometers.**
13pp. 2s. Temporarily out of print.
Provides for four types with temperature ranges of $-10^{\circ}/45^{\circ}\text{C.}$, $-2^{\circ}/102^{\circ}\text{C.}$, $20^{\circ}/105^{\circ}\text{F.}$ and $30^{\circ}/212^{\circ}\text{F.}$ each divided to 1° . Dimensions and tolerances are specified with full details as to graduation.

* With local amendments.

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696 : — Standard apparatus and methods for determining the percentage of fat in milk and milk products by the Gerber method.

696 : Part 1 : 1936 Apparatus.

45pp. 3s. 6d. Amendments CF 4398, December 1939 ; CF 7290, January 1941.

The specification covers butyrometers for testing milk, skim-milk, separated milk or butter milk, cream and cheese ; milk, sulphuric acid and amyl alcohol pipettes ; automatic measures for sulphuric acid and amyl alcohol, and funnels for weighing cream or cheese and for transferring milk powder to butyrometers. Dimensions and tolerances are specified with full details as to graduation.

696 : Part 2 : 1936 Methods.

52pp. 3s. 6d.

Covers the determination of fat percentage in milk, skim-milk, separated milk and butter milk, cream and cheese, and dried milk ; the properties of amyl alcohol used in the tests ; and the determination of distillation range, residue on evaporation and oil impurities. Apparatus and reagents required are specified and detailed instructions for carrying out the tests are given.

697 : 1940 Rubber gloves for electrical purposes.

NZ

18pp. 2s. Amendment PD 38, October 1942.

This specification covers gloves which are made by a dipping process, built-up from sheet rubber, or moulded, respectively. Three classes of gloves are recognised, and are designated by the rated voltage, viz., 660, 1100 and 3300 volts. Requirements are set in respect of manufacture, selection of samples for test, electrical and mechanical properties, ageing, dimensions, workmanship and finish, and marking. The Appendices give the methods of test, recommendations relating to the maintenance of gloves after purchase, and recommended internal dimensions, with diagram.

698 : 1936 Papers (unvarnished) for electrical purposes (excluding asbestos papers and those used in the manufacture of cables).

AS

36pp. 2s. Temporarily out of print.

The classes and thicknesses of paper covered by this specification are given in a table. The specification gives definite limiting values for the following properties : thickness, electric strength, ageing (bursting strength), mineral ash, conductivity (resistivity) of aqueous extract, and freedom from conducting paths. Ranges of values are given for : tensile strength, tearing resistance, oil absorption, air permeability, and acidity or alkalinity. The Appendices cover the methods of test, including the conditioning of specimens.

699 : 1944 Copper cylinders for domestic purposes (grades 1, 2 and 3).

12pp. 2s. Amendment PD 388, August 1945.

This revised specification was primarily undertaken to permit concentrated production in order to meet the anticipated demands of post-war building. The range of sizes, as compared with the 1936 edition, has been greatly reduced and covers cylinders having nominal capacities from 20-100 gallons. The table of dimensions now specifies standard external heights instead of a range of stock heights in 3 in. increments, and the actual capacity appropriate to each nominal capacity. In view of confusion between nominal and actual capacities in the past, the specification recommends that cylinders should be ordered by the appropriate B.S. number rather than by any other method.

Other changes include standard positions for connections for circulators and immersion heaters, and the requirement that all jointing in all cylinders should be effected by brazing. Previously, soldering was permitted in the case of the top and bottom seams of grade 3. Cylinders : the thickness of the copper sheets specified has been amended to meet the revised requirements.

700 : 1937 Graduated pipettes and straight pipettes.

NZ

34pp. 2s. Amendment PD 372, July 1945.

Covers (a) 1, 2, 5, 10 and 25 ml. graduated pipettes calibrated for delivery from zero mark to graduation marks, (b) 1, 2, 5, 10 and 25 ml. graduated pipettes

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calibrated for delivery down to jet, (c) 1, 2, 5, 10 and 25 ml. graduated pipettes calibrated for content, (d) 1, 9 and 10 ml. straight pipettes calibrated for delivery, (e) 1 ml. straight pipette calibrated for content, and (f) 1 ml. straight pipette calibrated for content and delivery.

Dimensions and tolerances are specified with full details as to graduations.

- 701 : 1936 Brewers' flasks.** NZ
9pp. 2s.
The standard size and dimensions of flask are specified, together with particulars of material, construction, graduation marks and numbering of graduation marks, capacity and tolerance on capacity, and inscriptions to be marked on flask.
- 702 : 1936 Silicon aluminium alloy castings for general engineering purposes.** NZ
10pp. 2s.
Quality of material, chemical composition, limits on dimensions, freedom from defects, tensile test, test for porosity, and inspection are specified. Dimensions of mould for casting the test samples, and details of the tensile tests piece are given.
- 703 : 1936 Y-alloy castings (as cast) for general engineering purposes.** NZ
11pp. 2s.
The quality and chemical composition of the material are specified. Other requirements relate to freedom from defects, tensile tests and tests for porosity.
- 704 : 1936 Y-alloy castings (heat treated) for general engineering purposes.** NZ
12pp. 2s.
The quality and chemical composition of the material are specified. Other requirements relate to freedom from defects, tensile tests, and tests for porosity. The heat treatment is dealt with in an Appendix.
- 705 : 1936 Determination of the agglutinating value of coal, method for the**
9pp. 2s. Amendment CE 2643, January 1937.
A standard method for the comparison of the caking properties of various coals in industrial use. The method adopted is a modification of the Grey-Campredon test.
- 706 : 1936 Sandstone kerbs, channels, quadrants and setts.**
19pp. 2s.
The quality of the stone (i.e., structure, texture, strength in compression, water absorption, and density) is specified, standard finishes are illustrated, and dimensions of the various sections of kerbs laid down. Methods of test for resistance to crushing and for absorption of water are given.
- 707 : 1936 Testing of mine fans.**
20pp. 2s.
This specification gives definitions of the terms used in fan testing technique. Standard formulae are given, together with details of position of measurement, measurement of pressure, air velocity, and power, speed of revolution of the fan, and tolerance on efficiency. Examples are given of maker's specification of the performance of a mine fan, and the manner of reporting a test on a mine fan.
- 708 : 1940 Trailing cables for mining purposes.** NZ
25pp. 2s. Amendment CF 6522, August 1940.
There are three parts in this specification dealing with trailing cables for coal cutters, conveyors and drills respectively. Constructional details are given for various types of cable and main dimensions of conductors, protective screens, sheaths and armouring are tabulated and illustrated. Dielectric thickness and voltage tests are also dealt with.

B.S.

709 : 1940 **Methods of testing fusion welds, welded joints and weld metal. (Applicable to the electric arc welding of steel).**

44pp. 2s.

Fillet weld inspection and tensile tests on butt welds are described. Details are given of the preparation, machining and heat treatment of samples, and the procedure of bend tests for determining the ductility, and weakness of joints, of weld metal, of notched bar impact tests on joints and of tests on all-weld-metal specimens. Notes on a cold bend test on joints and on making all-weld metal specimens are given, as well as on round v. square notched bar specimens.

710 : 1936 **An electric study and reading table lamp.**

NZ SA

8pp. 2s.

Describes a table standard to provide suitable illumination for individual tasks such as reading, sewing, etc., when equipped with a 100-Watt general service pearl lamp. It consists of a base, stem and lampholder; a reflector controlling the passage of light upwards and downwards; and an outer shade, the inner surface of which has a high reflection factor. Requirements are set for dimensions and illumination characteristics of the standard. The Appendix gives a diagram and typical dimensions of one form of study lamp which meets these requirements.

711 to 713 (1 vol.) : 1936 **Cold rolled brass sheets, strip and foil.**

NZ

15pp. 2s.

711. 80 per cent
712. 85 per cent
713. 90 per cent } copper content respectively.

(*up to and including 3 S.W.G. (0.252 in.) thick*).

The chemical composition of the three brasses is given with tables of tolerances on dimensions. Mechanical and hardness tests are specified and details of taking the tests included.

714 : 1936 **Cartridge fuses, for use in railway signalling circuits.**

NZ SA

10pp. 2s. Amendment CE 3558, April 1937.

This specification covers fuses of the non-indicating type. Two voltage ratings are specified, namely: 250 volts and 650 volts. The main dimensions for both types are specified together with particulars of manufacture and of tests for blowing current, rupturing capacity, and potential drop.

715 : 1936 **Sheet metal cylindrical flue pipes, fittings and accessories for gas fired appliances.**

26pp. 2s.

Definitions are given of various terms used in this specification which deals with pipes and fittings having welded or folded seams. Tables of dimensions of various pipes, bends, joint and connecting pieces are included with Appendices on tests for enamelled, galvanized and painted coatings.

716 : 1936 **Mild steel rigging screws and stretching screws and turnbuckles, for use with wire ropes for general purposes.**

NZ

21pp. 2s. Amendment CE 2662, January 1937.

Includes separate specifications for rigging screws for wire ropes from 1 1/4 to 4 3/4 in. circumference and for stretching screws and turnbuckles for proof loads from 4 to 85 cwt. Detailed dimensions and tolerances are included in each specification together with requirements in regard to quality and workmanship.

717 : 1936 **'Combustion testing' of domestic gas appliances.**

17pp. 2s. Amendment CF 5296, April 1940.

This specification lays down requirements as to the completeness of combustion of domestic gas appliances. It includes a standard method for the determination of the CO/CO₂ ratio with details as to its application to cooking appliances, water heaters and gas fires.

B.S.

- 718 : 1936 Density hydrometers.** NZ
52pp. 3s. 6d.
Eight series of hydrometers are specified, each designated by a combination of the density equivalent of 1 subdivision and the number of subdivisions in the nominal scale range. Each series covers the range 0.650 g/ml to 2.000 g/ml and a choice of four ranges is provided. Material, form and dimensions are given and corrections for surface tension and temperature are specified. The determination of density is described, with examples, and tables for the measurement of liquid in bulk are given. Vessels for hydrometer observations are specified.
- 719 : 1936 Terms used in railway signalling, glossary of** NZ SA
57pp. 3s. 6d.
The definitions given in this standard have been made as general as possible in order not to restrict them unduly. It includes such terms only as are applicable to railway signalling. The Appendix gives a list of British Standard specifications dealing with railway signalling.
- 720 : 1937 Calibration of carburettor jets for petrol engines (all types) (for flows not exceeding 2000 ml. per minute), standard method for the** NZ
21pp. 2s. Superseding B.S. 5030.
This specification includes dimensioned drawings of a carburettor jet calibrator and methods of extending use to aero-engine jets. It is recommended that commercial jets should be calibrated by comparison with a reference jet which has been calibrated upon the N.P.L. standard reference jet calibrator described in an Appendix.
- 721 : 1937 Machine cut gears. C. Worm gearing.** AS NZ
37pp. 5s. Amendment CF 7861, July 1941.
This specification applies to worm gearing having shaft angles at 90° and a normal pressure angle of worm thread of 20°. Three classes are provided, viz., precision, high-class, and commercial gears. It covers : definitions ; notation ; form and clearances of threads and teeth ; maximum permissible pitch errors and tolerances ; strength and horse-power rating ; and temperature rise, efficiency and lubrication. Appendices cover material for worm gears, stress factors for worm gears, and examples of calculations. Charts referring to speed factors, coefficient of friction, and running time factors are also given.
- 722 : 1937 Borehole and well pump tests.** NZ
45pp. 3s. 6d. Amendment CE 3953, May 1937.
The tests are designed to cover the performance and efficiency of pumps when handling water at temperatures up to 85°F. provided that proper precautions are taken to damp down pulsations of flow and pressure at the measuring device. Operating, mechanical and hydraulic conditions are dealt with together with methods of measuring discharge, head and power input. Tolerances on discharge, head and pump efficiency are specified.
- 723 : 1937 Sewage pump tests.** NZ SA
40pp. 3s. 6d. Amendment CE 3953, May 1937.
Deals with pumps for handling liquids having appreciable amounts of solid matter in suspension. The standard tests are similar to B.S. 722 (q.v.).
- 724 : 1937 Vaporising liquid pump test.** NZ
43pp. 3s. 6d. Amendment CE 3953, May 1937.
Deals with pumps handling liquids under such conditions that there is a possibility of vaporisation of the liquid itself at the entrance to the pumps owing to reduction of pressure such as condensate extraction pumps, boiler feed and other hot water pumps and petrol pumps but not air lift pumps and those for foaming liquid such as beer. The tests are similar to B.S. 722 (q.v.).

B.S.

- 725 : 1937** Hot rolled mild steel strip (or hoop) not exceeding 10 in. wide for general engineering purposes. NZ
6pp. 2s.

The process of manufacture, quality and tolerances on length, thickness, and weight, are specified and a cold bend test is prescribed.

- 726 : 1937** Measurement of air flow and the free air delivered by compressors, standard method of NZ
17pp. 2s.

The arrangement of the pipeline system and details of nozzles and instruments are described and illustrated. Methods of calculation are given and the equation for air flow through a nozzle is added.

- 727 : 1937** Apparatus for the measurement of radio interference, characteristics and performance of SA
27pp. 2s.

Specifies the frequency ranges on which the apparatus shall be suitable for use, acceptance band, input and output circuits, characteristics of voltmeter, calibration, and testing of appliances having insulated frames and/or cases. Descriptions of a portable apparatus complying with this specification, and of an additional external circuit suitable for use in the measurement of interfering voltages of appliances normally connected to domestic electric mains are given in the Appendices.

- 728 : 1944** See B.S. 492.

- 729 : 1937** Testing the zinc coating on galvanised articles other than wire (copper sulphate test and visual examination), method of NZ
10pp. 2s. Amendments PD 23, September 1942 ; PD 339, February 1945.

This specification deals with tests for the zinc coating on articles such as bolts, nuts and washers, plates, bars, tubes and fabricated articles up to 3 ft. long and a section of not more than 3 in. in width or 2 in. diameter. Castings of overall size not greater than $8 \times 6 \times 4$ in. and weight not more than 8 lb. and surface not greater than 120 sq. in. are covered also. The method of preparing the copper sulphate solution and using it is described.

- 730 : 1937** Sizes for paper (writings and printings, wrappings and casings, and trimmed boards).
9pp. 2s.

Tables of recommended sizes are given. Suggestions for listing and invoicing weight and substance are added.

- 731 : 1937** Flexible steel conduit for cable protection and flexible steel tubing to enclose flexible drives. NZ
18pp. 2s.

Three types are dealt with, namely, flexible steel conduit unpacked and rubber packed, and asbestos packed flexible steel tubing. Manufacture and quality are stated, dimensions are tabulated and workmanship described. Test requirements for flexibility, tensile strength, bend-fracture and soundness are given, and a galvanising test is specified. Methods for the determination of acetone extract, free sulphur in acetone, elongation, and resistance to ageing of rubber threads are given.

- 732 : 1937** Inlet and outlet connectors for bell, telephone, and similar circuits (excluding post office telephone circuits). SA
8pp. 2s.

This specification covers connectors (other than for P.O. circuits) with 2, 3, or 4 contacts, carrying a maximum current of up to 2 amperes R.M.S. (or D.C.) where the voltage between contacts does not exceed 30V. R.M.S. (or D.C.). The materials are specified, and pin and other dimensions are listed and illustrated. A high-voltage test is prescribed.

B.S.

- 733 : 1937 Density bottles.** NZ
16pp. 2s.
Dimensions and construction of 10, 25, 50 and 100 ml. bottles are specified with tolerances. Methods of determining density are described, with examples, and measurement of liquid in bulk is illustrated.
- 734 : 1937 Density hydrometers for use in milk.** NZ
73pp. 3s. 6d. Amendment CF 5394, April 1940.
Two ranges are specified, for use in normal milk and for use in milks of low density. The sizes, form, materials and construction, dimensions and graduations are given, details of hydrometer jars are specified and a set of tables for use with the hydrometers is provided.
- 735 : 1944 Sampling and analysis of coal and coke for performance and efficiency tests on industrial plant.** NZ SA
75pp. 5s.
Deals with sampling and determination of moisture, volatile matter, ash calorific value of coal and coke with the addition for the latter of method for the shatter test, bulk density, true and apparent specific gravity and trommel test. Standard methods of reporting test results are specified.
- 736 : 1937 Centrifuge tubes and sedimentation vessels for the determination of visible dirt in milk.**
13pp. 2s. Temporarily out of print.
Three sizes of centrifuge tubes are specified with a graduated portion of total capacity of 0.02, 0.05 and 0.2 ml. Material, dimensions, construction and graduation are described, with illustrations, and tolerances given. The material, construction and dimensions of the standard sedimentation vessel are given.
- 737 : 1937 Non-ignitable and self-extinguishing boards (with mineral base) for electrical purposes.** NZ SA
38pp. 2s.
Definitions and a classification of non-ignitable and self-extinguishing boards are given. Requirements are set in respect of : finish ; warping ; tolerance on thickness ; electric strength in air ; surface breakdown in air ; fuse-wire and carbon arc tests (for non-ignitable boards only) ; Barthel burner test ; compression and shearing strength ; impact test (brittleness) ; machining tests ; also edgewise breakdown in oil, bending test, water absorption and effect of heat treatment (for self-extinguishing boards only). The Appendices give the methods of test.
- 738 : 1937 Non-ignitable and self-extinguishing properties of solid electrical insulating materials (including classification and methods of test), definitions for** NZ SA
21pp. 2s.
Definitions are given, followed by a schedule of the hazards likely to be encountered in service, viz. : power arc, explosive arc (repeated application), weak intermittent arcs, flame, glowing hot body (with contact), radiant heat (continuous application), and tracking (intermittent contact). Under each heading are given examples of the occurrence of the hazards in question, followed by a note on the appropriate test and the method of grading recommended. The methods of test are described.
- 739 : 1937 Machine tool elements, dimensions for** AS NZ
17pp. 2s.
The specification covers milling-machine spindle noses and arbors, adaptors for old pattern arbors, tee slots for milling-machine tables, drilling-machine spindle noses and spindle flanges for lathes. Drawings and tables of dimensions are given.

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- 740 : 1937** **Portable chemical fire extinguishers, foam and carbon tetrachloride type.**
17pp. 2s.
The two specifications deal with the size, shape and dimensions of the extinguishers and the materials used in their construction. Requirements are specified as to their design including the method of actuating and gas expansion space. Details of the charge are given together with a standard method of testing.
- 741 : 1937** **Flameproof electric motors ; embodied in or designed for operating conveyors, coal-cutters, loaders and other purposes for use in mines.** NZ
25pp. 2s. Amendment PD 296, October 1944, superseding previous amendment.
This specification covers mining gear for voltages not exceeding 650 V. and to comply with the Coal Mines Act, 1911. A definition of the term flameproof enclosure is given, also particulars of constructional requirements, tests specified, and details of connections and electrical performance required. Rating times are included primarily to give a basis of comparison and makers are not debarred from stating additional ratings for special conditions in certain cases.
- 742 : 1937** **Fuel oils for burners (petroleum and shale oils) including methods of test.** NZ SA
31pp. 2s. Temporarily out of print.
This specification provides for fuel oils for domestic, marine and general purposes, tables of properties being given for the three classes of oil respectively. Properties scheduled are: closed flash point, viscosity, water content, sediment, Conradson carbon, gross calorific value, pour point, sulphur content, and ash content. The methods of test are described in the appendices.
- 743 : 1941** **Materials for horizontal damp-proof courses including classification for bituminous damp-proof courses.**
14pp. 2s.
The use of slates, copper and lead strip, bricks and bitumen felts are provided. Four different types of bitumen felts are described, details of the weights and size of roll are given. Recommendations for the uses of the different felts are also included.
- 744 : 1937** **Testing electric boiling-plates for domestic purposes, methods of**
19pp. 2s.
This specification describes standard tests for boiling time, thermal efficiency, and life. Values of insulation resistance are stated. Details of the methods of carrying out tests for thermal shock and for mechanical shock, method of measurement of leakage current and insulation resistance, and method of controlling humidity of atmosphere are given.
- 745 : 1937** **Joiners' glue (cake or powder, jelly or liquid, and casein glue).** NZ
17pp. 2s. Amendment CE 4993, October 1937.
Three specifications are included dealing with cake or powder glue, jelly or liquid glue, and casein glue respectively. The properties specified include water content, chlorides, reaction, odour, joint strength in shear, and keeping qualities. Methods of sampling and analysis are specified.
- 746 : 1937** **Gas meter unions.** NZ
24pp. 2s. Amendment CE 7285, April 1938.
The materials (metal and leather) are specified and dimensions of boss, nut and liners are tabulated for nominal sizes from $\frac{1}{2}$ in. to $1\frac{1}{2}$ in. inclusive. An Appendix gives the dimensions and marking of inspection gauges.
- 747 : 1937** **Bituminous roofing felts.** SA
18pp. 2s.
This classification has three main sections, which refer to bitumen felts, impregnated flax felts and hair felts, and tar felts, respectively. The various felts are described,

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together with their uses, the requirements as to constituent materials, and standard weights and packages. Information concerning the use of roof feltings is given in the appendix.

- 748 : 1937 Haemacytometer counting chambers and haemacytometer dilution pipettes.**
21pp. 2s. AS NZ
The size and details of slides and chamber are given and two types of ruling (single and double) are specified, with illustrations. Cover glasses and markings are described. The size, material and constructional details of dilution pipettes are given and graduation marks, capacity and tolerances on accuracy specified.
- 749 : 1937 Underfeed screw type stokers.** NZ
18pp. 2s.
This specification applies to stokers rated up to 300 lb. of solid fuel per hour for all applications except for metallurgical and other high temperature furnaces. Sizes of hoppers, conveyors, and motors, are given with requirements as to air supply, safety performance, and rating. Recommendations in regard to installation maintenance are included in an appendix.
- 750 : 1937 Underground fire hydrants and dimensions of surface box openings.**
14pp. 2s.
This specification relates to screw-down hydrants and to outlet bends for use with sluice valves. Three standard types of hydrants are specified, and details are given for body, spindles, valve seatings, flanges, sockets, valve cap, outlets, direction of rotation, and clear opening of hydrant boxes at ground level. Methods of testing of outlet bends for sluice valve hydrants, and of screw-down hydrants are included.
- 751 : 1937 Steel bearing plates for flat bottom railway rails.** SA
17pp. 2s.
The quality of the steel is specified. Tensile and cold bend tests are required to be carried out on test specimens cut from the plates as described. Requirements are laid down in respect of manufacture of plates, holing, freedom from defects, branding, cleaning and dipping. Diagrams of steel bars for bearing plates are given, with a table of dimensions and weights.
- 752 : 1940 Acceptance tests for steam turbines.** NZ
94pp. 3s. 6d.
The purpose of this test code is to enable any guarantees given by the manufacturer of plant made in accordance with B.S. 132 to be verified. The principal tests are those required to verify guarantees of output (or capacity), steam (or heat) consumption, speed regulation, and emergency governor operation. A list of internationally-agreed symbols for heat and thermodynamics is included, followed by sections dealing with guiding principles, instruments and methods of measurement, computation of results, and report of test. Supplementary notes on instruments and methods of measurement (43pp.) are given in an appendix.
- 753 : 1937 British Standard density-composition tables for aqueous solutions of sulphuric acid for use in conjunction with British Standard density hydrometers.**
70pp. 3s. 6d.
The density composition tables for sulphuric acid solutions given in this specification are intended primarily for use in conjunction with British Standard density hydrometers but may also be used in conjunction with other methods of determining density. The tables correlate density with composition and thus, by measuring the density at a given temperature, the composition and density between 10°C. and 40°C. can be determined, and vice versa. Appendices give details of British Standard density hydrometers, their reading in these solutions and examples of the use of the tables together with details of corrections to readings.

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- 754 : 1937** System for the direction of rotation of machine tool handwheels and levers relative to movement produced. NZ SA
21pp. 2s.

In this specification the direction of motion of the controls for lathes, drilling machines, planers, milling machines, slotting machines, and grinders is co-ordinated with the resultant motion of the machine part affected. The principles are illustrated.

- 755 : —** Apparatus and methods for the determination of the percentage of fat in milk and milk products by the Babcock method.

755 : Part 1 : 1937 Apparatus

48pp. 3s. 6d. Amendment CF 7291, January 1941.

The specification covers bottles for testing milk, cream and skim-milk, milk pipette, graduated cylinder and burette for acid, automatic measure for sulphuric acid butyl alcohol pipette and funnel for weighing cheese. The material, dimensions, construction, inscriptions and graduation, and methods of testing, of the apparatus, are given.

755 : Part 2 : 1937 Methods.

31pp. 3s. 6d.

Covers the determination of fat in milk, skim-milk, separated milk or buttermilk, cream and cheese.

- 756 : 1939** Apparatus for the determination of water by distillation with an immiscible liquid. NZ
34pp. 2s. Temporarily out of print.

Two types are described, one based on the Dean and Stark apparatus, the other as used by the Fuel Research Station. The assembly, flask, condenser and receivers are specified with regard to material, construction and graduation, and detail drawings are given. Four sizes of receiver are specified for type 1, for capacities 2, 7.5, 10 and 25 ml.

- 757 : 1944** Sampling and testing gelatines, methods for NZ
36pp. 3s. 6d.

The tests described come under two heads: (1) physical tests which are mainly determined by the degree of hydrolysis, and (2) chemical tests which concern freedom from associated substances. The prescribed tests include the determination of moisture content, jelly strength, viscosity, melting point, foam, water absorption, pH, solubility of partially swollen sheet, keeping quality, grease, sulphur dioxide, ash, chlorides, colour of jelly and of solution, clarity, arsenic, and of heavy metals.

- 758 : 1945** Small domestic hot water supply boilers for solid fuel.

28pp. 3s. 6d.

This specification applies to solid-fuel fired small boilers primarily intended for domestic hot water supply and having a heating surface of not more than 5 sq. ft. and not less than 2 sq. ft. Range, fireback, and hopper-fed boilers and boilers of special design are not included. The rating, fuel capacity and heating surface are specified in Part 1 together with requirements in regard to individual parts of the boiler, materials, construction, finish and marking.

Notes are given on the recommended practice for the installation of the boilers.

Part 2 gives type tests to determine whether particular designs of boilers comply with the requirements of Part 1. Test code 1 gives a water heating efficiency test and test code 2 an overload test designed to disclose inherent defects and weaknesses of construction.

- 759 : 1937** Valves, gauges and similar fittings for land boilers installations.

27pp. 2s. Amendment CF 7216, March 1941.

Deals with safety valves, high-and-low water alarms, stop valves, feed valves, blow-down fittings, water gauges, pressure gauges, test connections and fusible plugs. It does not provide for fittings for calorifiers nor for certain low pressure

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and hot water boilers. Materials, temperature and pressure limits and method of construction are specified together with formulae for determining the minimum aggregate area of safety valves and the size of springs for spring-loaded valves. Recommendations are included in a foreword in regard to the installation of safety valves and water gauges.

760 : 1943 Dimensions and testing of metal-sheathed impregnated paper-insulated plain annealed copper conductors for use in mines. NZ

23pp. 2s. Amendments PD 120, June 1943 ; PD 334, February 1945.

Dimensions and resistance values, together with voltage tests, are given for cables for 660, 3300 and 6600 volts. Details of bedding and armouring are included.

761 : 1937 Cylindrical vertical multitubular boilers.

56pp. 3s. 6d. Amendment CF 2730, November 1939.

Deals with the materials, construction, workmanship, scantlings, inspection and testing of cylindrical vertical multitubular boilers of the smoke tube and water tube types. Material specifications are included for steel plates, rivets and bars, for tubes both smoke and water and for uptakes. The rules in regard to workmanship and construction deal with the plates, cylindrical shells, butt straps, fire boxes, uptake, stays compensating and angle rings, seatings for mountings, rivet holes and riveting. The rules for scantlings includes formulae for determining the thickness of shells, butt straps, crowns and dished and flat crown plates, uptakes, fireboxes and ogee rings together with formulae for the calculation of the efficiency of riveted joints and for the pitch and spacing of rivets. Tube plates and the pitch and spacing of tubes are also dealt with. Inspection during construction is also specified together with details of the hydraulic test.

762 : 1938 Wrought iron bars 'special' grade. NZ

15pp. 2s.

This specification provides for wrought iron suitable for the manufacture of rings and other lifting gear components. It covers quality of iron and its chemical composition, requirements of bars, and testing and inspection. The tests comprise a chemical test, tensile and bend tests, and a nick and bend test.

763 : 1937 Sampling of coal with special reference to the size-weight-ratio theory, by E. S. GRUMELL, D.Sc., with notes on sampling and analysis for ash content, by A. CRAWFORD, M.Sc., Ph.D., and W. REED. NZ

75pp. 3s. 6d. Amendment CE 9954, November 1938.

The report refers to B.S. 403 and 410. Bailey's work on the S.W.R. is discussed critically, and a number of diagrams showing average weight of particles within certain limits, S.W.R. curves and maximum error curves, is given. Experiments are described and the results examined statistically.

764 : 1937 Automatic change-over switches and contactors for emergency lighting systems. SA

20pp. 2s.

The object of this specification is to ensure reliability of operation of the switch in the event of the normal lighting being interrupted. Main requirements such as carrying capacity and making capacity, contact pressure, and separation, are prescribed. The switches are required to operate in general by force of gravity only on interruption of the main supply which normally energises hold-in solenoids. Performance and routine tests are detailed.

765 : 1938 Internal-combustion engines, carburettor-type, excluding aero-engines. NZ SA

13pp. 2s.

This specification provides a basis for assessing the performance of an engine. It defines the rated output, and then deals with speed, governing, fuel consumption, tests, standard and auxiliary equipment, and items to be considered in the selection of an engine for use with an electrical generator.

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- 766 : 1938 Baffles or draught diverters on gas appliances, including recommendations for flue terminals.** NZ
11pp. 2s. Amendment CE 7619, May 1938.
Deals principally with the performance of baffles under various draught conditions and includes clauses dealing with strength and resistance to corrosion. Similar requirements for flue terminals are included in Part 2.
- 767 : 1938 Hydro-extractors.** NZ
19pp. 2s.
The quality of materials is specified and constructional requirements are laid down. Electric welding of joints in basket shells is described and tests and markings are specified. Notes on operation and maintenance are appended.
- 768 : 1938 Grub screws (B.S.W., B.S.F., B.A. and B.S.P.).** NZ
10pp. 2s.
This specification gives the dimensions for steel and brass grub screws with conical or cup points and slotted or hexagon socketed heads of various nominal diameters up to $\frac{3}{4}$ in. Reference is made to B.S. 84 and B.S. 93 for the tolerances on the screw threads.
- 769 : 1938 Chemical analysis of butter, methods for the**
24pp. 2s. Temporarily out of print.
The preparation of sample and methods for determining moisture, curd and salt, fat and volatile acids are given, with details and drawings of apparatus. An appendix describes special tests for curd protein, lactose, acidity, common salt, copper and iron, iodine value, saponification value, refractive index, peroxide and pH.
- 770 : 1938 Chemical analysis of cheese, methods for the**
14pp. 2s. Temporarily out of print.
The preparation of sample is described and methods for determining moisture, fat and salt are given, with details and drawings of apparatus. Supplementary tests for pH, titratable acid and fat are given in Appendices.
- 771 : 1938 Synthetic resin (phenolic) moulding materials and mouldings.** NZ
32pp. 2s. Amendments PD 116, June 1943 ; PD 245, April 1944.
A classification of mouldings and moulding materials is given. The separate requirements for both mouldings and moulding materials are scheduled, in the latter case a table being given which summarises the values of properties for the various types of material. The various methods of test are described.
- 772 : 1942 Rubber joint rings for gas mains.†** NZ
7pp. 2s. Amendment PD 326, January 1945.
This specification has been prepared to cover vulcanised rubber rings and the requirements will not necessarily be appropriate for rings containing synthetic oil-resisting materials. Three types of rings are provided for, namely soft, medium and hard, and hardness limits for each type are specified, together with physical and mechanical tests.
- 773 : 1938 Ostwald-Folin pipettes.** NZ
13pp. 2s.
Covers 0.2, 0.5, 1.0, 2.0, 3.0, 5.0 and 10.0 ml. pipettes calibrated for delivery, and similar series for content. Materials, dimensions, construction and graduation are described together with tolerances.

† War emergency issue.

B.S.

- 774 : 1938 Under-floor steel ducts for electrical services, with fittings.** SA
19pp. 2s.

The object of this specification is to provide a standard steel under-floor duct system for electrical services for incorporation in buildings under construction. It prescribes the dimensions, and tests for dimensions, tensile strength of steel, malleable cast iron fittings, protective coating on duct, galvanising or sherardising, and enamel, and continuity test for ducts and fittings. Tables of recommended limit gauges for inspection of internal and external dimensions are given.

- 775 : 1938 Contactors when supplied separately or in combination with other gear.** NZ SA
30pp. 2s.

This specification covers the more usual classes of contactor control gear for pressure up to 660 V. D.C. and up to 6600 V. A.C. and does not deal with special plant, e.g., welding equipment, where conditions are too varied. Ratings, carrying capacities and making and breaking capacities are specified with appropriate tables of values, and the types of duty from twice to 600 times per hour, are described. Performance and mechanical tests are specified.

- 776 : 1938 Materials for use in the manufacture of magnesium oxychloride flooring compositions.**
32pp. 2s.

The materials are calcined magnesite, magnesium chloride, fillers (wood flour, sawdust, and ground silica), and pigments. For calcined magnesite, quality, composition, density, fineness, setting time, and strength are specified; and for magnesium chloride, quality and composition. Quality, moisture content, resin content, fineness, and matter soluble in water are specified for fillers. Pigments are described, and clauses deal with colour and staining power, matter soluble in water, and ether extract.

- 777 : 1938 Film strips, film slides and sub-standard glass slides.**
8pp. 2s. Amendment CE 8603, June 1938.

The width of 'safety' film strip for optical but not cinematograph projection, size of picture, distance from edge of picture to edge of film, pitch, and perforation are specified, together with disposition of picture, size of masks, and distance from beginning and end of film to picture. The specification also prescribes dimensions of sub-standard glass slides, and position indicator for film-strips and sub-standard glass slides.

- 778 : 1938 Steel flanged joints for hydraulic pipe lines for pressures up to 4500 lb. per sq. in.** NZ SA
15pp. 2s. Amendment CE 8608, June 1938.

Materials for flanges and bolts are specified and methods of fixing and jointing are given. Notes on thickness of pipes, jigs for cutting, joint rings and test pieces are added and tables of dimensions are given for two-bolt oval flanges for pipe sizes from 1/2 in. to 3 in. up to 1500 lb./sq. in. and from 1/2 in. to 2 in. up to 4500 lb./sq. in.

- 779 : 1938 Cast iron boilers for central heating and hot water supply.**
14pp. 2s. Amendment CF 2732, November 1939.

Applies to cast iron central heating and hot water supply boilers as follows:—
a. Steam boilers of over 5 sq. ft. heating surface for operation at pressures not exceeding 15 lb. per sq. in.
b. Hot water central heating boilers of over 5 sq. ft. heating surfaces for operation at pressures not exceeding 120 ft. head.
c. Hot water supply boilers of over 5 sq. ft. heating surface for operation at pressures not exceeding 120 ft. head.

The specification stipulates a maximum permissible working temperature of 212°F. and requires that each boiler or boiler section should be tested by hydraulic pressure 100 lb. per sq. in.

Boiler openings are dealt with in detail together with safety valves, relief valves and other mountings and appliances for each type of boiler.

B.S.

- 780 : 1938 Riveted steel boilers for hot water central heating and hot water supply.**
33pp. 2s. Amendment CF 2733, November 1939.
This specification applies to boilers for operation at pressures not exceeding 65 lb./sq. in. and temperatures not exceeding 212°F. It prescribes the quality of the material, with mechanical tests. Requirements relating to construction and workmanship are laid down, together with the rules for the calculation of the scantlings and the setting out of the riveted joints. Relief valves are dealt with and recommendations made as to other mountings. A hydraulic test is prescribed.
- 781 : 1938 Wrought iron chain slings and rings, links, alternative to rings, egg links and intermediate links.** SA
43pp. 3s. 6d. Amendment CE 8879, July 1938.
Covers single, two-leg, three-leg, four-leg, reeveable collar and non-reeveable collar slings with recommended working loads. The component parts of the slings are dealt with in detail with requirements as to material and proof testing.
- 782 : 1938 Electrodes for metal arc welding in the construction of ships.**
14pp. 2s.
The test requirements of all-weld-metal test pieces (tensile, cold-bend and impact tests), welded joints (tensile and cold-bend tests) and fillet weld (cruciform and shear tests) are specified and methods and conditions of testing are given. Methods of obtaining an all-weld-metal test piece are described.
- 783 : 1938 Japanese and/or Korean sardine oil (pale).** NZ
16pp. 2s.
This specification covers moisture and volatile matter, dirt, colour, specific gravity and density, iodine value, saponification value, acidity and unsaponifiable matter. Sampling and test methods are described.
- 784 : 1938 Testing of chemical stoneware.** NZ
34pp. 2s.
The apparatus, test piece and methods of testing tensile strength, resistance to compression, cross-bending, impact and abrasion, are described and the determination of powder density, apparent density (porosity), water absorption, specific heat, thermal expansion and conductivity, and acid soluble iron, acid solubility and chemical resistance is specified. A method of determining resistance to thermal change is given.
- 785 : 1938 Rolled steel bars and hard drawn steel wire for concrete reinforcement.** NZ SA
19pp. 2s. Amendment CG 716, June 1942.
The specification covers bars in their ranges of tensile strength, mild steel, medium steel and high tension steel and wire (37 to 42 tons per sq. in.). The requirements laid down include process of manufacture, quality, tensile and bend tests.
- 786 : 1938 High duty iron castings (grades 1, 2, 3 and 4).** AS NZ SA
13pp. 2s. Amendment CF 7943, May 1941.
This specification states the requirements in respect of the provision of test bars and requirements for the transverse and tensile tests. An appendix deals with the calculation for the transverse rupture stress (modulus of rupture). Clauses on moulding and freedom from defects are also included.
- 787 : 1938 Flame-proof, air-break, electrically-operated gate-end boxes (for use on 3-phase A.C. circuits up to 650 volts) suitable for the requirements of the mining industry.**
23pp. 2s. Amendment PD 220, February 1944.
Standard voltages and sizes are listed, and several features of design and construction are specified, including cable fittings, remote and local control switches, contactors, overload and other protection; also particulars of temperature limits and tests.

B.S.

788 : 1938 Wrought iron tubes and tubulars gas (light), water (medium), and steam (heavy) qualities. NZ SA

23pp. 2s. Amendments CE 7087, March 1938 ; CF 577, January 1939.

This specification applies to welded, screwed and socketed, and plain end, tubes from $\frac{1}{8}$ in. to 6 in. nominal bore, with corresponding tubulars (i.e., pieces, long-screws, bends, springs, return bends, and barrel nipples). It prescribes the quality of material, workmanship, hydraulic, bend, and flattening tests, marking and packing. The dimensions, tolerances and weights are given for three thicknesses of tubes. For similar tubes in steel, see B.S. 789 and 789A.

789 : 1938 Steel tubes and tubulars gas (light), water (medium) and steam (heavy) qualities. SA

23pp. 2s. Amendments CE 7088, March 1938 ; CF 577, January 1939.

This specification applies to welded and weldless, screwed and socketed, and plain end, tubes from $\frac{1}{8}$ in. to 6 in. nominal bore, with corresponding tubulars (i.e., pieces, long-screws, bends, springs, return bends, and barrel nipples). It prescribes the quality of material, workmanship, hydraulic, bend and flattening tests, marking and packing. The dimensions, tolerances, and weights are given for three thicknesses of tubes. For similar tubes in wrought iron, see B.S. 788. For war emergency standards, see B.S.789A.

789A : 1940 Steel tubes and tubulars. Light weight and heavy weight qualities (revised weights).† NZ

23pp. 2s.

This specification is similar in scope to B.S. 789. To meet war emergency conditions there are small relaxations in certain requirements, and two thicknesses of tube (light weight and heavy weight) only are listed.

790 : 1938 Nickel silver sheets and strip of 10 to 30 per cent nickel content (up to and including 3 S.W.G. (0.252 in.) thick). NZ

14pp. 2s.

The specification covers 7 nickel silvers of different compositions with the range 10 to 30 per cent nickel, each of which may be in one of 4 conditions: soft, half-hard, hard and extra hard. The mechanical properties (bend test and hardness test) are specified. Other requirements cover freedom from defects and tolerances on dimensions.

791 : 1938 Bomb calorimeter thermometers. NZ

9pp. 2s. Amendment CF 8472, August 1941.

Provides for thermometers scaled 9 to 15, 12 to 18, 15 to 21, 18 to 24, 21 to 27, 24 to 30, 27 to 33, 8 to 20, 14 to 26 and 20 to 32 degrees Centigrade. Graduation and constructional details and inscriptions are specified.

792 : 1938 Mild steel dustbins.

10pp. 2s. Amendments CF 3110, August 1939 ; CF 6626, August 1940.

This specification covers four sizes to $3\frac{1}{4}$ cu. ft. capacity, and lays down the essential dimensions. The requirements include particulars relating to the construction of the rims, hoops, seams, handles, etc.

793 : 1938 Tungsten filament electric lamps and fittings, with partial daylight-colour corrections.

20pp. 2s. Amendment PD 16, September 1942.

This specification is intended for use where a certain degree of daylight correction is desired. The first part of the specification prescribes the requirements for lamps, selection of lamps for test, conditions of test, and rejection of lamps. Schedules

† War emergency issue.

B.S.

setting out dimensions, initial rating, and life performance are given. The second part prescribes the requirements for fittings, and the testing of fittings. Approximate test for determining the colour of the light, and table of maximum efficiencies ideally obtainable are given in the Appendices.

- 794 : 1938 Transformers for low-voltage lighting below 1kVA rating (excluding transformers for use in mines).** SA
9pp. 2s.

This applies to fixed and portable single-phase units having separate input and output windings, with input voltages up to 650 V. and output voltages up to 55 V. It specifies the standard output voltages, frequency and sizes ; earthing requirements : high-voltage and rated output voltage tests ; temperature rise ; rating and regulation for intermittent use ; and voltage regulation. Constructional requirements are also included in the specification.

- 795 : 1938 Ampoules.** NZ
24pp. 2s. Temporarily out of print.

Covers tapered neck round bottom ampoules (1, 2, 5, 10, 20 and 50 ml.) and flat bottom ampoules with straight necks (1, 2, 5, 10, 20 and 50 ml.), constructed necks (1, 2, 5, 10, 20 and 30 ml.), drawn out necks (10·5, 1, 1·5, 2, 3 and 5 ml.), and open ends and sloping shoulders (1 and 2 ml.). Dimensions with tolerances are specified with particulars as to construction and materials.

- 796 : 1943 Rubber hose with cotton braided reinforcement.†** NZ
18pp. 3s. 6d. Amendment PD 359, June 1945.

This specification has been based on the proposals of the Technical Advisory Committee to the Rubber Controller for maximum raw rubber percentages embodied in Rubber Control Order No. 17 limiting the use of rubber in hose. It deals with moulded hose manufactured by the long length braided process and also with braided hose with wrapped finish manufactured on mandrels of the same types specified in B.S. No. 924 (q.v.). For each type clauses cover construction, dimensions and tolerances, rubber content, and physical tests on the finished hose.

- 797 : 1938 One-mark capillary pipettes.** NZ
10pp. 2s. Amendment PD 45, August 1942.
Provides for 0·005, 0·01, 0·02, 0·05, 0·1, and 0·2 ml. pipettes. Graduation and constructional details and tolerances are specified.

- 798 : 1938 Galvanised corrugated steel sheets (primarily for use in the home market).**
8pp. 2s.

The quality and dimensions of the galvanised sheets, and the weight of galvanised coating are specified. Other matters dealt with include selection of test samples, corrugation and bend test on coating, and storage test. The standard test for determining the weight of spelter on galvanised sheets is given.

- 799 : 1938 Fully automatic oil burning equipment for central heating and hot water supply, code for** NZ*
28pp. 3s. 6d.

Full descriptions of the items of equipment are given (without sizes), also particulars of storage and service tanks, fittings, and oil pipe lines. Sections on the installation of tanks, on furnace accessories, and on electrical equipment are included. The Appendices contain a table of physical properties of the oils, notes on installing burners, and a diagram of a typical installation.

- 800 : 1939 Limits of radio interference.**
17pp. 2s.

The specification prescribes limits of magnitude, duration and frequency of occurrence required for compliance with the designation 'radio interference free.' Methods of sampling and testing are described.

† War emergency issue.

* With local amendments.

B.S.

- 801 : 1938 Lead and lead alloys for cable sheathing (suitable for all types of metal sheathed cable).** AS
23pp. 2s. Amendment CG 152, May 1942.

This specifies the chemical compositions of lead and lead alloy cable sheathing. The conditions appertaining to a chemical test are given. The standard methods for the analyses are given in Appendices B and C, for lead and lead alloy sheathing respectively. Appendix A gives particulars as to the types of use for which the various sheathing metals are suitable.

- 802 : 1945 Tarmacadam and tar carpets (granite limestone and slag aggregate).**
16pp. 2s.

The specification is in two parts.

Part One covers the quality of the aggregate and includes gradings for aggregate for the following :

Ease course and single-course work ;

Open texture wearing courses with two or three course construction ;

Medium texture wearing courses, preferably laid warm ;

Close texture wearing courses to be laid hot.

Requirements for the quality and quantity of binder and the temperatures of mixing are also given.

Part Two includes recommendations for surfacing with Tarmacadam which relate to such points as conditions of transport, thickness for various courses, spreading, joints and application of grit.

An Appendix gives rates of coverage for the various gradings and thickness of courses.

- 803 : 1938 Solid bituminous filling compounds for cable boxes on systems up to and including 11 000 volts.**

32pp. 2s. Amendment CE 9501, October 1938.

Two types are provided for, viz., Type 1, Natural bitumen base compound ; Type 2, Petroleum residue base compound. Requirements are laid down in respect of solubility, softening point, pouring temperature, electric strength (proof) test, mineral matter (ash), freedom from injurious sulphur, adhesiveness, penetration, contraction and depth of pipe, and segregation test (for type 1). The methods of test are fully described.

- 805 : 1939 Toluoles (pure toluole, pure toluole for nitration, 90's toluole, 95's toluole).**
51pp. 3s. 6d.

These specifications cover colour, specific gravity and distillation range and include limits for water, total sulphur, hydrogen sulphide and mercaptans, neutrality and residue on evaporation. An acid wash test is also included. Limits for corrosive sulphur are included in the pure toluole and 90° toluole specifications. Limits for non-sulphonable hydrocarbons are included in the 95° toluole specification. Sampling and test methods are described.

- 806 : 1942 Ferrous pipes and piping installations for and in connection with land boilers.**

54pp. 3s. 6d. Amendments CG 10, May 1942 ; PD 44, November 1942. NZ AS*

Applies to the construction of pipework connecting a land boiler to engine, turbine or industrial plant and all connected auxiliary pipework together with the individual pipes and pipe fittings forming parts of such installations for pipes of any bore for pressures exceeding 50 lb. per sq. in. and for pipes over 10 in. bore for steam at pressures of 50 lb. per sq. in. or less. Material specifications are included for cold drawn weldless steel pipes, hot-finished weldless steel pipes, hydraulic (water gas) lap welded steel pipes, roll lap welded steel pipes, butt welded steel pipes and butt and lap welded wrought iron pipes, flange material, rivets and rivet bars and castings. Sections are included dealing in detail with scantlings and construction, which include limits for the maximum permissible working pressures and temperatures for the various types of pipes and fittings.

* With local amendments.

B.S.

- 807 : 1938 Shanks of electrodes for spot welding machines.**
11pp. 2s.
The sizes of electrodes are specified and dimensions of shanks and sockets are tabulated, together with details of gauges for testing.
- 808 : 1938 Chick-Martin test for disinfectants, modified technique of the**
17pp. 2s.
The apparatus and reagents are specified and the methods of maintaining the culture and of addition of yeast and culture to medication tubes, and for the determination of crystallising point are described.
- 809 : 1938 Sampling of dairy products, methods for the**
26pp. 2s.
The specification covers sampling for general and chemical examination and for bacteriological examination, of milk, cream, butter, condensed and powdered milk and cheese. Sampling tubes, plungers, dippers, triers and sampling bottles and jars are described and illustrated, and the procedure of sampling is specified.
- 810 : 1938 Plain linoleum and cork carpet.**
14pp. 2s. Temporarily out of print.
Three types of plain linoleum and two types of cork carpet are recognised as standard. The quality is specified by reference to the gauge (thickness), and materials, manufacture, finish of surface, seasoning, width, length, water absorption test, and mechanical tests are prescribed.
- 811 : 1938 Cycle (B.S.C.) threads (formerly known as C.E.I. threads).** NZ
9pp. 2s.
This specification gives the basic form of the thread, and the basic dimensions for the threads on bolts and nuts, spokes and nipples, and threads for certain special application. Tolerances are not included in this specification.
- 812 : 1943 Sampling and testing of mineral aggregates, sands and fillers, methods for the**
40pp. 3s. 6d.
The methods described in this standard have been prepared primarily for use in connection with the various British Standards for road and concrete materials and construction. It is in four parts, referring respectively to general tests, roadstone, gravel and sand, and fillers. Appendix A covers the description and physical characteristics of aggregates. Appendix B gives details of test sieves.
- 813 : 1938 Chemical symbols and abbreviations, British Standard.** NZ
35pp. 3s. 6d.
This list of symbols is based on the report of a joint committee of the Chemical Society, the Faraday Society and the Physical Society. It aims at making the best use of the limited number of alphabets and founts commonly available. The symbols listed include those relating to mathematics, physical constants, chemistry, thermodynamics, electricity, magnetism and optics. Abbreviations of units and organic radicals are included. A complete index of terms, symbols, signs and abbreviations is given.
- 814 : 1938 Mild steel drums for lubricating oils.** NZ
11pp. 2s.
This specification refers to cylindrical mild steel drums, suitable for the transport of lubricating oils. Two classes of drums are provided for, namely, class 1 for use generally in the home trade, and class 2, a slightly heavier drum, for export. The specification prescribes the method of construction, and the essential dimensions for drums of from 3 to 45 gallons capacity.

B.S.

- 815 : 1938 Under-floor non-metallic ducts for electrical services, with fittings.** SA
22pp. 2s.

The object of this specification is to provide a standard non-metallic under-floor duct system for electrical services for incorporation in buildings under construction. Tests are prescribed for : dimensions, mechanical and fire-resisting properties, galvanising or sheradising, enamel, and continuity of bonding devices.

- 816 : 1938 Minimum requirements for electrical appliances and accessories (excluding those covered by other British Standards).** SA
17pp. 2s.

The first section of this specification deals with general requirements common to all appliances and accessories, such as insulation, earthing, prevention of accidental contact, protection against mechanical hazards, and electrical tests. The second section relates to various specific items such as joint and junction boxes, switch-sockets, switches for use in lampholders, tumbler switches, lighting fittings, heating and cooking appliances and electrode water boilers.

- 817 : 1938 Cast iron surface plates and tables for inspection and marking purposes.** AS* NZ
26pp. 2s. Amendment CF 7824, April 1941.

This specification applies to :

- a. Square and rectangular cast iron surface plates.
- b. Rectangular cast iron surface tables, comprising a surface plate supported on an independent braced strand (type 1).
- c. Rectangular cast iron surface tables, comprising a table top with permanently attached legs (type 2).

Clauses cover, material, ageing, standard sizes, general features, height, handles, accuracy, finish, and marking. Notes on recommended chemical compositions of plain and alloy cast irons, and methods of heat treatment ; and recommended methods of testing surface plates and tables are given.

- 818 : 1938 Cast iron straightedges (grades A & B)** AS* NZ
16pp. 2s.

This specification applies to cast iron straightedges of bow-shaped design with one working face, of lengths up to 8 ft. Requirements are laid down in respect of the material, general design features and dimensions. Two grades of accuracy are prescribed. Appendix A gives recommended chemical compositions of plain and alloy cast irons, and methods of heat treatment. Appendix B gives recommended methods of testing cast iron straightedges, and a method for the determination of the proportion of bearing area.

- 819 : 1938 Horizontal retorts and intermittent vertical chambers, test code for**
42pp. 3s. 6d.

Provides for the testing of horizontal retorts, inclined retorts, intermittent vertical retorts and intermittent vertical chambers and contains all the data necessary for the experimental determination of the yields and qualities of the gas, coke, tar, benzol, liquor and other products together with full explanations of how these should be measured but excludes data which are not necessary to a general evaluation of the behaviour of a given plant. An appendix is included dealing with guarantees and guarantee tests as between the contracting parties in the construction of a new plant.

- 820 : 1938 Grey cast-iron conduit boxes for electrical wiring.** SA
12pp. 2s.

This specification applies to small circular conduit boxes made of grey cast iron, suitable for use with $\frac{5}{8}$ in., $\frac{3}{4}$ in., and 1 in. heavy-gauge screwed conduit complying with B.S. 31. Material and method of manufacture are prescribed, together with details of design and dimensions, screw threads, spouts, mechanical tests, and tests for dimensions. Notes on inspection gauges for screw threads are included.

*With local amendments.

B.S.

- 821 : 1938 Iron castings for gears and gear blanks (ordinary, medium and high grade).** 18pp. 2s. AS NZ
The chemical composition and mechanical tests are specified separately for each of the three grades covered. The mechanical tests include tensile, transverse and hardness tests. The appropriate heat treatment is also laid down. Details for the taking of test bars, their size and number of tests are laid down.
- 822 : 1938 Terminal markings for electrical machinery and apparatus, British Standard recommendations for** 89pp. 31pp. of diagrams. 7s. 6d.
The recommendations cover the assignment of specified letters for marking terminals of supply lines, machines, transformers, reactors, switch and control gear and instruments. Numerous diagrams of connections, showing the application of markings, are given.
- 823 : 1938 Density-composition tables for aqueous solutions of sodium chloride and of calcium chloride for use in conjunction with British Standard density hydrometers.** 36pp. 3s. 6d. NZ
Table 1 gives the mass (g) in g. of NaCl in 100 g. of aqueous solution and mass (G) in g. of NaCl in 1 litre aqueous solution for values of density (D_t) of solution (in g. per ml.) in steps of 0.001 g./ml., for temperatures from 0 to 40°C. in steps of 5°C. Tables 2 and 3 give (abridged) values of g and D_t , and of G and D_t , respectively, based on table 1. Table 4 gives g and G for values of D_t with regard to CaCl_2 . A list of standard hydrometers with notes on reading and corrections and examples of use, are added.
- 824 : 1938 Density-composition tables for aqueous solutions of caustic soda for use in conjunction with British Standard density hydrometers.** 47pp. 3s. 6d. NZ
Table 1 gives values of mass (g) in g. of NaOH per 100 g. mass of aqueous solution, and of mass (G) in g. of NaOH in 1 litre aqueous solution, for values of density (D_t) in g./ml. of aqueous solution, in steps of 0.001 g./ml., for temperatures from 0 to 40° in steps of 5°C. A list of standard hydrometers, examples of use and notes on corrections are added.
- 825 : 1939 Mild steel shackles for lifting purposes.** 24pp. 2s.
Covers large and small 'D' and bow shackles supplied assembled with (A) screwed pin with eye and collar, or (B) countersunk slotted-head screwed pin, or (C) parallel pin with circular head and forelock, or (D) bolt with hexagonal head and nut. Dimensions are included for sizes of small D shackles for working loads from 12 cwt. to 14 tons, of large D shackles from 10 cwt. to 35 tons, of small bow shackles from 6 cwt. to 35 tons and for large bow shackles from 7 cwt. to 35 tons. Materials, design and testing are specified.
- 826 : 1939 Steel storage bins and racks.** 22pp. 2s. NZ
This specification relates to bins and racks in three classes for shelf loads of 30, 60, and 120 lb. per sq. ft. respectively. It does not standardise the details of design but prescribes such general dimensions as are necessary to secure uniformity. The diagrams illustrate typical forms of construction of fixed type and adjustable racks, bins, and counter stacks.
- 827 : 1939 Radio-interference suppression for trolley-buses and tramways.** 36pp. 2s. NZ
The specification prescribes limits for the intensity of the interference-producing field set up by tramcars and trolley-buses and the associated lines, and gives details of design of capacitors and inductors to be used for interference suppression.

B.S.

Sources of interference are tabulated and notes on methods of suppression and tests are added, together with a classification of insulating materials and a series of diagrams of connections.

- 828 : 1939 **Portable fuse and plug boxes (applicable to film studios, stages, music halls, etc.).**

13pp. 2s.

This specification applies to D.C. systems where the voltage to earth does not exceed 120 V. (2- and 3-wire systems), and the nominal current capacity of each 1 in. outlet does not exceed 80 amp. Certain definitions are given and the materials to be used are prescribed with particulars of box construction, fuses, and plugs, with illustrations. Markings, high-voltage tests, type tests, temperature rise, and insulation resistance tests are specified.

- 829 : 1939 **Mild steel drums for inflammable liquids.**

16pp. 2s.

This specification relates to welded mild steel drums, of from 10 to 110 gallons capacity, for the storage and conveyance of highly inflammable liquids not completely miscible with water and of moderate vapour pressure and flashing below 73°F. It prescribes the method of construction and the essential dimensions for the drum and for the filling and outlet bungs and bosses. An Appendix describes the method of making a vapour pressure test on inflammable liquids.

- 830 : 1939 **Winchester bottles (of 80 oz. and 90 oz. nominal capacity).**

9pp. 2s.

The specification provides for these two, the most usual, sizes of bottle, either plain or fluted, with four alternative methods of closure, viz., ground glass stoppers, cork stoppers, screw stoppers and caps. The dimensions of bottles and fluting are specified in a table and diagram respectively. Detailed dimensions for the necks of bottles are given.

- 831 : 1939 **Transformers for use with electrically-operated toys.**

SA

10pp. 2s.

This applies to single-phase units having separate input and output windings, for connection to low-voltage circuits. It specifies standard input and output voltages, frequency and sizes, and standard output tappings. The tests comprise: high-voltage, rated output-voltage, temperature rise, and voltage regulation tests. Requirements in respect of construction and marking are also included in the specification.

- 832 : 1945 **Bell transformers (excluding transformers for use in mines).**

10pp. 2s.

This specification applies to bell ringing transformers having separate input and output windings for connection to low voltage circuits. It specifies standard input and output voltages, frequency and sizes of standard overall dimensions and earthing requirements. Test requirements comprise high voltage, rated output voltage, temperature rise and voltage regulation tests. Requirements in connection with construction and marking are given. Two classes of transformer are included in the specification, class A : transformers having two output voltages and class B a less elaborate transformer with one output voltage only.

- 833 : 1939 **Radio-interference suppression for automobiles and stationary internal-combustion engines (limits and methods of suppression).**

NZ

32pp. 2s. Amendment CF 2565, June 1939.

The limits of the magnitude of the interference-producing field are specified and design details are given of resistors, inductors and capacitors used for suppression, with notes on testing. Notes on the sources of interference, on the degree of suppression required and on the methods of suppression, including screening and bonding, are given and a series of diagrams of connections are added.

B.S.

834 : 1944 *See B.S. 492.*

835 : 1945 **Asbestos cement heavy quality flue pipes and fittings for heating and cooking appliances.**

24pp. 2s.

Shows the closest minimum and maximum dimensions at present obtainable for asbestos cement flue pipes and their essential fittings and components.

Definite dimensions are not given in all cases for the fittings but illustrations of the most frequently used and suitable fittings are included together with notes on their correct direction of assembly and on a suitable cement for the joints.

836 : 1939 **Whale oil.**

12pp. 2s.

The specification covers colour and saponification value and includes limits for moisture and dirt, acidity and unsaponifiable matter. Sampling and test methods are described.

837 : 1939 **Steel-cored copper conductors for overhead transmission purposes.**

22pp. 2s.

Specifies material ; resistances, weights and sizes of solid wires and steel-cored conductors, with permissible tolerances ; mechanical properties ; joints in wires and conductors ; stranding ; test samples ; and tests for mechanical properties and electrical resistance.

838 : 1939 **Method of test for the toxicity of wood preservatives to fungi.**

17pp. 2s.

The wood block method of test has been developed as the standard test. The standard deals with culture vessels, medium for growing cultures, species of wood used for test, treatment of blocks, infection of blocks, test fungi, duration of test, examination of test blocks after exposure to fungi attack, and evaluation of results. A description of the test fungi is given in the Appendix.

839 : 1939 **Veterinary cod liver oil.**

28pp. 2s.

The specification covers colour, specific gravity and density, iodine value, saponification value, vitamin potency and blue value and includes limits for refractive index, acidity and unsaponifiable matter. Sampling and test methods are described.

840 : 1939 **Light-gauge seamless copper and copper-alloy conduit and fittings for electrical wiring.** SA

16pp. 2s.

This specification covers conduit of $\frac{1}{2}$ in. to $2\frac{1}{2}$ in. (inclusive) nominal size ; and clauses deal with chemical composition ; length ; diameter, thickness, and weight of conduit, with permissible tolerances ; and design and dimensions of fittings. Tests for dimensions and mechanical tests on conduit are specified. Dimensions of couplers, adaptors, clips, and saddles are set out. Notes on gauges for the inspection of the outside diameter of conduit are given.

841 : 1939 **Lamp-caps and lampholders for architectural lamps for voltages not exceeding 250 volts.** SA

7pp. 2s. Amendment PD 16, September 1942.

This specification covers the principal dimensions of lamp-caps for architectural lamps of 30 mm. or 40 mm. diameter, together with the requirements for lampholders used with such lamps on circuits not exceeding 250 volts. Design and constructional requirements are stated. The standard lamp-cap is illustrated and a table of dimensions given.

B.S.

- 842 : 1939 Voltage-operated earth-leakage circuit breakers for use on consumers' premises.** 30pp. 2s. SA
This specification applies to earth-leakage circuit breakers for domestic, farm, and factory use on D.C. or A.C. systems up to medium voltage and 200 amperes. Earth leakage features, routine tests, ratings, sizes, and temperature rises, are specified ; the latter with reference to various classes of insulating material used in coils. Informative notes on earth leakage protection are added.
- 843 : 1939 Thermostatically-controlled thermal-storage electric water-heaters with copper containers from 1½ to 100 gallons capacity.** 29pp. 2s. SA
Temporarily out of print.
Requirements are scheduled in respect of material used, design features including dimensions, tolerance on capacity, elements and thermostats. loading, electrical connections and earthing. Taps, fittings and feed cisterns are also considered. Test requirements are laid down, the methods of test being fully described.
- 844 : 1939 Testing of vegetable adhesives.** 15pp. 2s. Amendment CF 9068, December 1941.
Applies to such vegetable adhesives as are manufactured from starch or from material containing a high proportion of starch, e.g., wheat flour and potato starch. Typical adhesives are crystal gums, dextrans and water soluble pastes and powders. The tests cover the determination of moisture content, acidity, alkalinity and pH value, ash, chemical residue, colour, efficiency of adhesion, foam, keeping quality and viscosity.
- 845 : 1939 Commercial acceptance tests for steam boilers, code for** NZ
20pp. 2s. Amendment PD 111, May 1943. Turkish translation, 2s.
Indicates the methods which should be adopted and the data which it is desirable to obtain when carrying out a simple efficiency test at minimum cost on steam raising plants using solid fuel, to obtain a satisfactory measure of performance under reasonably steady load conditions. The code is not intended for use in the very comprehensive tests carried out on a large power station trials for which the code included in the report of the Heat Engine Trials Committee of the Institution of Civil Engineers is recommended.
- 846 : 1939 Burettes and bulb burettes.** 23pp. 2s.
Covers burettes of 1, 2, 5, 10, 25, 50 and 100 ml. capacity and bulb burettes of 45, 65, 85 and 105 ml. capacity. Full dimensions and tolerances are given and graduation is closely specified. Requirements as to delivery times are included.
- 847 : 1939 Cold rolled mild steel strip for general engineering purposes.** NZ
8pp. 2s.
The specification provides for strip in four tempers—hard, medium-soft, soft and deep drawing. The chemical composition and a bend test is laid down for each temper. Other requirements include process of manufacture, quality and tolerances on dimensions.
- 848 : 1939 Testing of fans for general purposes (excluding mine fans).** 47pp. 3s. 6d.
Methods of measuring pressure and air velocity and of calculating air volume are described and general instructions for testing are given. Eight test methods, for different types of fans, are described, with illustrations.
- 849 : 1939 Plain sheet zinc roofing, code of practice for**
19pp. 2s. Amendment CF 2877, June 1939.
Part 1 is a specification for zinc sheets for building, and contains requirements in respect of : quality of material, freedom from defects, stamping, dimensions, gauge, and bending test. Part 2 is a code of practice, and gives the requirements

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relating to the details of construction for the roofing and the method of laying zinc on different roof forms.

- 850 : 1939 Cinematograph 'safety' film, definition of** NZ
10pp. 2s.

The term 'safety film' is defined, and clauses cover ignitability, burning time, and field tests. Details of the methods for the determination of ignitability and burning time, and of the method of carrying out the field test are given.

- 851 : 1939 Chemically prepared oxides and hydrated oxides of iron (marigold, maroon and yellow) pure and reduced.** NZ*
14pp. 2s.

The specification provides for oxides of two types 'pure and reduced.' The requirements laid down relate to composition, permissible content of coarse particles, oil absorption, colour staining power, volatile matter, carbonates and matter soluble in water.

- 852 : 1939 Toolmakers' straightedges.** AS NZ
9pp. 2s.

This specification applies to toolmakers' straightedges of short length, intended for very accurate work, and having one working edge, which is bevelled and very slightly rounded off (commonly described as a 'knife-edge'). It covers material, general features, finish, accuracy, handles, glass test plate, case, packing, and marking.

- 853 : 1939 Calorifiers.**
59pp. 3s. 6d.

This specification applies to riveted and welded steel, cast iron and copper calorifiers for central heating and hot water supply : it applies to steam heated calorifiers of any capacity and to water-to-water calorifiers exceeding 50 gallons holding capacity. It prescribes the quality of material, with mechanical tests. Requirements relating to construction and workmanship are laid down, together with the rules for the calculation of the scantlings, and for the riveting and method of making welded joints. Relief valves are dealt with and recommendations made as to other mountings. A hydraulic test is prescribed.

- 854 : 1939 Welded steel boilers for steam central heating.**
41pp. 3s. 6d.

This specification applies to boilers for operation at pressures not exceeding 30 lb./sq. in. It prescribes the quality of material, with mechanical tests. Requirements relating to construction and workmanship are laid down, together with the rules for the calculation of the scantlings, and the forms of and methods of making the welded joints. Relief valves are dealt with and recommendations made as to other mountings. A hydraulic test is prescribed.

- 855 : 1939 Welded steel boilers for hot water central heating and hot water supply.**
40pp. 3s. 6d.

This specification applies to boilers of over 5 sq. ft. heating surface for operation at pressures not exceeding 65 lb./sq. in. and temperatures not exceeding 212°F. It prescribes the quality of material, with mechanical tests. Requirements relating to construction and workmanship are laid down, together with the rules for the calculation of the scantlings, and the forms of and methods of making the welded joints. Relief valves are dealt with and recommendations made as to other mountings. A hydraulic test is prescribed.

- 856 : 1939 Wing nuts.** AS NZ
8pp. 2s.

This specification covers wing nuts for nominal sizes of screw threads to 3/4 in. B.S.W. and B.S.F. and B.A. 5 to 0. The general dimensions are specified for wing nuts made from brass, malleable iron, or hot steel stampings.

* With local amendments.

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- §57 : 1939 Safety glass for land transport.** AS NZ SA
30pp. 2s. Amendment CF 6975, November 1940.
This specification deals with both heat-treated (toughened) glass, and laminated glass. General clauses cover limits of thickness, marking, and selection of test samples. For heat-treated glass, bending test, uniformity test, mechanical strength tests, and limiting size of broken fragments are prescribed. For laminated glass boiling test, humidity test, discoloration test, and mechanical strength and adhesion tests are prescribed.
- §58 : 1939 'Best Yorkshire' wrought iron.** NZ
17pp. 2s. Amendment CF 6885, October 1940.
This specification lays down requirements in respect of: quality and chemical composition of the iron, rolling margins and tolerances on weight, tolerances on lengths as ordered, shearing margin for plates, and branding. The requisite tests comprise a chemical test, tensile and bend tests, a nick and bend test, and a nick all round and fracture test.
- §59 : 1939 Fuel fired furnaces for heating and heat treatment purposes.** NZ
63pp. 3s. 6d.
Deals with testing for evaluating the performance and efficiency of continuous and intermittent furnaces, with or without recuperators or regenerators, fired by solid, liquid or gaseous fuel. The code is applicable to mill and forge furnaces for the continuous and batch heating of ingots, slabs, blooms and billets and to a wide range of fixed hearth, bogie and conveyor type furnaces employed by the iron and steel industry for the re-heating and heat treatment of rolled, forged or cast products. It is also applicable to certain furnaces used in the non-ferrous and other industries. The code covers both comprehensive and less detailed commercial tests for general industrial use.
- §60 : 1939 Approximate comparison of hardness scales, table of** AS NZ
7pp. 2s.
The Diamond Pyramid scale is taken as the basis of reference and corresponding values of Brinell hardness and Rockwell (direct reading) hardness numbers are given.
- §61 : 1939 Air-break switches (including isolating switches, totally-enclosed and flameproof types) for voltages not exceeding 660 volts.** AS NZ SA
22pp. 2s.
Voltage and current ratings are given, followed by limits for temperature rise and other features of design and construction, including dimensions of copper connections to the main contacts. Tests for making capacity and breaking capacity, and mechanical and high-voltage tests, are prescribed, switches for series motors or traction circuits, and those covered by B.S. 587 and 775, are not included.
- §62 : 1939 Air-break circuit-breakers (including totally-enclosed and flameproof types) for voltages not exceeding 660 volts.** AS NZ SA
29pp. 2s.
Standard voltage and current ratings are given, followed by general clauses on design and construction including permissible temperature rises, calibrations for release devices and connections to external circuits, clearances, interlocking, etc. Type tests, a high-voltage test and performance tests are prescribed, but making and breaking capacity tests are omitted pending the results of research.
- §63 : 1939 Steel straightedges of rectangular section.** AS NZ
15pp. 2s. Amendment PD 387, August 1945.
This specification applies to steel straightedges up to and including 6 ft. in length, of rectangular section, with both working faces finished straight and parallel, such as may be used on surface tables and for testing the alignment of machine tools.

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Matters dealt with include material, standard sizes and general design, points of support for straightedges of 3 ft. length and over, accuracy, case, packing, and marking. Notes on heat treatment for stabilising, supporting straightedges of rectangular section, and testing the accuracy of straightedges are given.

864 : 1945 Capillary fittings and compression fittings of copper and copper alloy for use with light gauge copper tube.

22pp. 2s.

The fittings dealt with in this specification are for use with light gauge copper tube in accordance with B.S. 659. The specification does not attempt the complete dimensional standardisation of the fittings, but it does lay down such dimensions and requirements as are essential to ensure satisfactory installation and performance. The basic assembly dimensions are given for all of the most commonly used types of fittings of nominal sizes from $\frac{1}{2}$ in. to $2\frac{1}{2}$ in. The specification includes a number of general requirements relating to design, construction, and workmanship : it specifies a hydraulic test and, in the case of cast fittings, a test for porosity, and indicates the appropriate working pressures for cold water installations and hot water installations at various temperatures.

865 : 1939 70 mm. perforated film for recording purposes.

6pp. 2s.

This specification prescribes the general arrangement and dimensional requirements for British Standard 70 mm. perforated film. The general layout is shown by means of a diagram and the dimensions are given.

866 (3R) : Parts 1 and 2 : 1940 Schedule of sizes of tins and cans for British packers in the United Kingdom for the home trade.†

179pp. 5s. Amendments PD 379, August 1945 ; PD 427, November 1945.

This wartime Schedule is made mandatory by the Control of Packaging Order of the Ministry of Supply. It specifies the civilian usages for which tins and cans are permitted, the types of containers and sizes of packs which are allowed together with particulars of the material from which they may be made.

867 : 1939 Traction lamps (series burning).

NZ

29pp. 2s. Amendments PD 16, September 1942 ; PD 108, April 1943.
See B.S. 161 and 555.

Vacuum and gasfilled lamps are included, details being given regarding dimensions, initial rating factors and life performance. Requirements for selection and testing of lamps are also given. Appendices give dimensions of lamp caps and of a metal socket adaptor for the torsion test.

868 : 1939 Cod oil for sulphonation purposes.

13pp. 2s.

This specification covers specific gravity and density, iodine value and saponification value and includes limits for acidity and unsaponifiable matter. Sampling and test methods are described.

869 : 1939 Toolmakers' flats and high precision surface plates.

AS* NZ

13pp. 2s.

This specification applies to circular hardened steel toolmakers' flats up to 6 in. diameter, and to circular cast iron high precision surface plates 10 in. and 14 in. diameter. Matters dealt with include material, standard sizes, general design and dimensions, limits of accuracy, finish, cases, packing, and marking. Notes on the compositions of some typical steels and cast irons, and on the appropriate methods of heat treatment are given.

* With local amendments. † War emergency issue.

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- 870 : 1939 Micrometers (external).** AS* NZ
18pp. 2s.
Amongst the items specified are material, design of frame, micrometer screw, spindle, thimble and barrel, adjustments, measuring faces, accuracy, setting gauges, case, packing, and marking. Setting gauges are separately specified, material, general design, and accuracy being prescribed. Recommended methods of testing micrometers are given.
- 871 : 1939 Abrasive papers and cloths for general purposes.** NZ
27pp. 2s.
Each product is dealt with separately, requirements being stated in respect of quality of material, workmanship, form and dimensions, grading, tensile strength, sampling and inspection, size of grain, quality and adhesiveness of the abrasive, tensile test, and marking and manufacturer's certificate.
- 872 : 1939 Abrasive papers and cloths (technical products).** NZ
29pp. 2s.
Each product is dealt with separately, requirements being stated in respect of quality of material, workmanship, form and dimensions, grading, tensile strength, sampling and inspection, size of grain, quality and adhesiveness of the abrasive, tensile test, and marking and manufacturer's certificate.
- 873 : 1939 Construction of road traffic signs (cast metal) and posts.**
23pp. 2s.
The specification covers signs, posts and fittings. Material, quality and finish of signs are specified and reflectors are described. Length and finish of steel, concrete, and asbestos cement posts and construction and quality of fittings specified. Notes on painting of signs and manufacture of posts are added and detailed dimensioned drawings of signs are given.
- 874 : 1939 Definitions of heat-insulating terms and methods of determining thermal conductivity and solar reflectivity.** SA
18pp. 2s.
A complete list of symbols used and definitions of terms are given with examples and formulae. In part 2 the process of measuring the required quantities is described. Further particulars of the methods to be employed are included in Appendices together with a useful list of conversion figures for the appropriate items in the chief systems in common use.
- 875 : 1939 Silica basins, crucibles and capsules.** NZ
8pp. 2s.
Dimensions and tolerances are specified for 20, 50, 75, 100 and 200 ml. basins, 10, 15, 20, 30 and 50 ml. tall crucibles, 10, 15, 25 and 40 ml. squat crucibles and for two sizes of capsules with lids for combined moisture and ash determination.
- 876 : 1939 Hand hammers.** NZ
31pp. 2s. Amendment CF 5353, April 1940.
This specification applies to hand hammers in use for general purposes. It covers form and dimensions, weight, material, manufacture, grinding, handles, inspection, hardness tests, practical tests, and marking. Detailed dimensions are given for fourteen types of joiners', engineers', smiths', and stonebreakers' hammers.
- 877 : 1939 Foamed blastfurnace slag for concrete aggregate.**
14pp. 2s.
This specification is limited to foamed blast furnace slag having a lime content not exceeding 50 per cent by weight. The material is described, and the conditions of testing are stated. Sampling technique is specified, followed by the requirements which must be satisfied. These concern weight per cubic foot, contamination by heavy impurities, stability test, contamination by coke, and amount of available sulphate. The methods of test are described in the Appendices.

* With local amendments.

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- 878 : 1939 Comparative commercial tests of coal or coke and appliances in small steam raising plants, Code for** NZ
23pp. 2s.

Simple standard tests to determine the relative value of different solid fuels and/or the relative value of new equipment, such as grates, circulators, economisers, air heaters, smoke eliminators and such like auxiliary boiler apparatus, in small steam raising plants under ordinary working conditions.

- 879 : 1939 Steel tubes for water well casing.** NZ
26pp. 2s.

This specification applies to lapwelded and weldless steel tubes for water-well casing, of nominal sizes 4 in. to 48 in., having butting joints of the following types : screwed and socketed, screwed flush, inside and outside. Requirements are laid down for material, and process of manufacture of tubes and sockets, mechanical properties of tubes, dimensions and weights and tolerances, screw threads for joints, and protective coatings.

- 880 : 1939 Concert pitch.** SA
7pp. 1s.

The international standard of concert pitch has been based on a frequency of 440 cycles per second for the note A in the treble clef. This specification has been prepared with a view to reducing the necessary tolerances to acceptable values ; and deals with temperature and pitch of musical instruments, broadcasting the international standard of concert pitch, and sub-standards of pitch. A brief survey of the historical background of concert pitch is included.

- 881 : 1939 Nomenclature of hardwoods (including botanical species and sources of supply).**
73pp. 3s. 6d.

This covers hardwoods of actual, or potential, commercial importance in Great Britain. Over 240 woods are listed, and information is given in respect of botanical species, sources of supply, and other names by which the particular wood may be known. A list of authors of botanical names is given in the Appendix. An index of all the names listed is included.

- 882, 1198, 1199, 1200, 1201 : 1944 (one volume) Concrete aggregates and building sands.**
54pp. 5s.

Contains specifications for aggregates from natural sources for concrete ; natural sands and crushed natural stone sands for plastering, for external renderings, for applications on interior walls or floors, and for applications on expanded metal, for brickwork and for masonry ; and aggregates for granolithic concrete floors : with methods of sampling, sieve analysis, determination of clay, silt, and fine dust in aggregate, organic impurities, of moisture content, and of various physical properties.

- 883 : 1940 Cables and flexible cords for electrical equipment of ships (including electrical propulsion).**

55pp. 3s. 6d. Amendment PD 149, August 1943, superseding all previous amendments, 18pp. 2s. PD 277, August 1944.

The specification covers vulcanized rubber-, impregnated paper- and varnished cambric-insulated cables and vulcanised rubber-insulated flexible cables and cords. Polyvinyl chloride insulated and/or sheathed cables are dealt with in the Supplement PD 149. Physical properties and standard sizes of conductors are specified and tabulated and details of insulation, protective covering, sheath, bedding and armour are given. Voltage, spark and insulation tests are described and tests for tinning and armour given. Tables of dimensions for cables for voltages from 250V. to 6600V., and rules for identification marking of cores are added.

- 884 : 1941 Low-pressure gas mantles.**
24pp. 2s.

Detailed dimensions and tolerances are given of four sizes of gas mantles. A

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lighting efficiency test is specified together with breakage and distortion tests and methods of sampling are included.

885, 886 : 1940 Seamless brass tubes for general purposes. AS NZ
13pp. 2s.

885. Hard drawn seamless brass tubes (ultimate tensile stress : 25 to 35 tons per square inch).

886. Annealed seamless brass tubes.

These two specifications cover particulars of materials used, processes of manufacture, and dimensions. The chemical composition and mechanical properties are also specified.

887 : 1940 Vernier callipers. AS NZ
14pp. 2s. Temporarily out of print.

This specification applies to vernier callipers, with internal and external measuring faces, and having ranges of measurement, in inch units up to 48 in., and in metric units up to 1 metre. Clauses deal with nomenclature, material, standard sizes, beam, jaws, measuring faces, graduations, accuracy, case, packing, and marking.

888 : 1940 Slip (or block) gauges and their accessories AS NZ
24pp. 2s.

This specification applies to slip gauges of rectangular form in inch and metric sizes up to 4 in. and 100 mm., respectively, and to the commoner types of accessories used with such gauges, viz., measuring jaws, scribing point and centre point, holders (or slides), and base. Provision is made for gauges of three grades of accuracy, viz., workshop, inspection, and calibration gauges. Requirements are set down in respect of design, dimensions and accuracy. Recommended sets of gauges are given in an Appendix.

889 : 1940 Flameproof electric lighting fittings for use in coal mines and other places where inflammable gas or vapour may be present in the surrounding atmosphere. SA NZ
24pp. 2s.

The dangerous atmospheres covered are group I methane, group II petroleum vapour and acetone vapour, group III towns gas or coke oven gas with not more than 60 per cent hydrogen content. Other gases are being investigated and acetylene, carbon disulphide and hydrogen are excluded. Maximum permissible gaps for flameproof joints are prescribed, also materials for bodies and fittings, and types of lamps, lamp holders, bulkhead, and well glasses, to be used. Various tests are detailed for the glasses with notes of fittings, securing bolts, cement and permissible temperature rise.

890 : 1940 Building limes.
46pp. 3s. 6d.

This specification is in two main parts, referring to quicklimes and hydrated limes respectively. In each case, a classification is given, followed by a description of the material, the general conditions of testing, and the test requirements which must be satisfied. Sampling technique and the methods of test are described in the Appendices.

891 : 1940 Method for direct reading hardness testing (Rockwell principle). AS
10pp. 2s.

This covers a method of testing for hardness which entails measurement of the depth of penetration of a diamond point. Particulars of the method of testing, measurements, and hardness number are included and Appendices deal with the scales used and means of checking the accuracy of the apparatus.

892 : 1940 Highway engineering terms, glossary of
77pp. 5s.

The aim of the glossary is twofold : firstly, to select a series of terms applicable to the various sections of highway engineering, and in the case of doubtful or

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alternative terms to adopt the one favoured by general usage ; and secondly, to provide a definition of reasonable applicability for these terms. The glossary is arranged in sections covering, highway types, preliminary operations, preparatory works, surface construction, materials, plant and machinery, and traffic ; together with a section dealing with miscellaneous terms. An index covering the complete range of terms is included.

- 893 : 1940** Method of testing dust extraction plant and the emission of solids from chimneys of electric power stations. NZ
52pp. 5s. Amendment PD 26, September 1942.

The methods of sampling of flue gases and of the air elutriation of flue dust are described in detail, with illustrations of apparatus. Preparation of samples of flue dust and methods of testing are given and notes on the flow of gases in chimneys are added.

- 894 : 1940** Determination of the flow and drop points of fats and allied substances (apparatus and methods of use). SA NZ
11pp. 2s.

The apparatus is of the Ubbelohde type. Details of the standard thermometer, glass cup, metal fitting and auxiliaries are given, with illustrations, and the method of determination is described.

- 895 : 1940** Methods for the microbiological examination of butter.
14pp. 2s. Temporarily out of print.

Sampling and the preparation of the sample are dealt with in addition to the method of plating and counting. The preparation and handling of the media for the differential enumeration of yeasts and moulds, lipolytic, caseolytic, saccharolytic and coliform organisms is specified in detail.

- 896 : 1940** Dimensions of stretchers, stretcher carriers in ambulances, and hospital trolleys.
10pp. 2s.

The purpose of this specification is to establish such fundamental dimensions as will ensure that the stretchers run easily on to, and rest safely on, the stretcher carriers in the ambulance and on the tops of hospital trolleys. The dimensions are applicable to stretchers of various types of construction.

- 897, 898 : 1940** Leaded gunmetal castings and ingots. NZ
12pp. 2s. Amendment CF 6775, October 1940 ; Memorandum PD 1, July 1942.

897. 85/5/5/5. Leaded gunmetal ingots.

898. 85/5/5/5. Leaded gunmetal castings.

The chemical composition and mechanical properties are prescribed and also certain manufacturing requirements.

- 899 : 1940** Cold rolled copper sheets and strip (half-hard and annealed) for general purposes (up to and including 3 S.W.G. (0.252 in.) thick and 42 in. wide). AS
12pp. 2s.

The chemical composition and the mechanical properties of material in the conditions indicated are specified. Tolerances on width, length and thickness are tabulated.

- 900, 901 : 1940** Leaded gunmetal ingots and castings. NZ
12pp. 2s. Amendment CF 6776, October 1940 ; Memorandum PD 1, July 1942.
Temporarily out of print.

900. 87/9/3/1. Leaded gunmetal ingots.

901. 87/9/3/1. Leaded gunmetal castings.

The chemical compositions and mechanical properties of the materials are prescribed together with manufacturing requirements and a porosity test in the case of castings if required.

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- 902 : 1940** **Methods of testing latex, raw rubber and unvulcanised compound rubber.** SA
29pp. 3s. 6d.

Standard methods for determining the dry rubber content, total solids, alkalinity, and coagulum and foreign matter in latex are included, together with methods for sampling and the measurement of colour. For raw rubber and unvulcanised compounded rubber methods of test are included for acetone extract, acid value, nitrogen, moisture (including volatile matter), total sulphur, sulphur in acetone extract, total fillers, ash, copper, manganese, plasticity, mastication number, and 'equilibrium' water absorption.

- 903 : 1940** **Methods of testing vulcanised rubber.** SA
74pp. 5s.

Standard method for chemical analysis are included dealing with acetone extract, unsaponifiable matter in acetone extract, paraffin wax and ceresin, chloroform extract, alcoholic-potash extract, sulphur in acetone extract, rubber-combined sulphur, total fillers, sulphur in total fillers, antimony, rubber content, ash, carbon black and/or graphite; copper and manganese. Physical tests are specified for soft vulcanised rubber dealing with tensile stress-strain, permanent set, hardness number, electrical properties (breakdown strength, surface resistivity, volume resistivity, permittivity and power factor), swelling, 'equilibrium' water absorption, permeability to gases and accelerated ageing. Physical tests are specified for ebonite dealing with cross breaking strength, impact strength, plastic yield, compressive strength, swelling, water absorption ('equilibrium' and total) and electrical properties as for soft vulcanised rubber. Methods of preparation of samples are also described.

- 904 : 1940** **Dimensions of instrument jewels.**
12pp. 2s.

This specification applies to the dimensions of V jewels, ring stones, and end stones for instrument purposes, and compass jewels. The forms and dimensions are given in a series of figures and tables. The Appendix deals with the inspection of jewels. The specification does not apply to jewels for watches and clocks nor to cup jewels for integrating meters.

- 905 : 1940** **Anti-interference characteristics and performance of radio receiving equipment for aural and visual reproduction (excluding receivers for motor vehicles and marine equipment).**
43pp. 2s.

The specification covers conditions to be complied with in the design and installation of receiving equipment and methods for suppressing interference. Details of tests for assessing the efficiency of interference suppression are given. A number of diagrams of connections are added.

- 906 : 1940** **Engineers' parallels (steel).** AS NZ
8pp. 2s.

This specification applies to parallel steel blocks of the following grades and sizes: Grade A accuracy: sizes $\frac{1}{4}$ in. \times $\frac{1}{2}$ in. \times 4 in. to $1\frac{1}{2}$ in. \times 3 in. \times 12 in. Grade B accuracy: sizes $\frac{1}{4}$ in. \times $\frac{1}{2}$ in. \times 4 in. to 2 in. \times 4 in. \times 16 in. The parallels of Grade A accuracy are high precision parallels having a lapped finish and are primarily intended for inspection; those of grade B accuracy are primarily intended for general tool room work. Clauses cover material, standard sizes, accuracy, finish, case, packing, and marking.

- 907 : 1940** **Dial gauges for linear measurements (excluding back plunger type).** AS
19pp. 2s. Amendments CF 9296, February 1942; PD 174, October 1943.

This specification applies to dial gauges having the axis of the plunger movement parallel to the plane of the dial; with dial diameters from $1\frac{1}{4}$ in. to 2 in., and having ranges of movement of the plunger up to $\frac{1}{2}$ in. or 12 mm., and measuring by steps of 0.001 in., 0.0005 in., 0.0001 in., and 0.01 mm. Grades and types are

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indicated, and requirements are laid down in respect of general design features and accuracy, recommended dimensions, methods of testing, and notes on the care and use of dial gauges are given in Appendices.

- 908 : 1940 **Sisal ropes for general purposes.**
20pp. 2s. Amendments CF 5536, June 1940 ; PD 176, October 1943 ; PD 237, April 1944 ; PD 367, June 1940.
Provides for plain or hawser laid (3 strand), shroud laid (4 strand) and cable or water laid (9 strand) sisal ropes from 1/2 to 18 in. circumference. Full testing requirements are included for both yarn and rope together with rope weights and breaking strengths.
Thirteen additional clauses deal with the tests for water repellent rope additional to and numbered in sequence following existing clauses.
- 909 : 1940 **Vitamins A and D in oil for animal feeding purposes.†**
15pp. 2s.
This specification issued under the authority of the Ministry of Food covers vitamin potency and colour and includes limits for acidity and unsaponifiable matter. Test methods are described.
- 910 : 1940 **Controlled cod liver oil mixture for animal feeding purposes.†**
15pp. 2s.
This specification issued under the authority of the Ministry of Food covers vitamin potency and includes limits for acidity and unsaponifiable matter. Test methods are described.
- 911 : 1940 **Biological assay of vitamin D₃ by the Chick method, method for the** NZ
20pp. 2s.
The recognised radiographic and bone-ash methods are dealt with. The rearing of chicks for the assay and the basal diet are described and the test methods are given. The numerical method for the interpretation of the assay is described in detail.
- 912 : 1940 **Bolted flameproof cable-couplers primarily for use in mines and having properties capable of being used as detachable dividing boxes.** NZ
11pp. 2s.
This specification covers two types (viz., link, and contact pin and tube) for any voltage up to 3300V. and are not intended to be coupled or uncoupled while alive. Parts are defined, standard voltage and current ratings are tabulated, and particulars of construction are given with tables of clearances in air and in compound. A high-voltage test is prescribed.
- 913 : 1940 **Pressure creosoting of timber.**
12pp. 2s.
This specification covers the methods of preserving timber normally in use in this country. The quality of the creosote is specified together with the condition of the timber, incising, penetration, stacking in cylinder, maximum oil pressure and temperature, full-cell or Bethell process, and empty-cell or Rueping process. Details of the method for the determination of moisture content ; absorption schedule ; and a diagram showing spacing of incisions for squared timber are given.
- 914 : 1940 **Laboratory porcelain, tests for** SA
7pp. 2s.
Standard methods are included for the determination of porosity of body and imperfections in glaze (dye test), resistance to heat and sudden change of temperature, constancy of weight and resistance of glaze to high temperatures, and resistance of glaze to acid and alkali.

† War emergency issue.

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915 : 1940 High alumina cement.

22pp. 2s.

Requirements are laid down for fineness, chemical composition, compressive strength, setting time and soundness. Details of testing machines and the methods of testing are given in the Appendices.

916 : 1940 Black bolts and nuts (small hexagon and square) B.S.W. and B.S.F.†

AS

4pp. 2s. Amendment PD 178, October 1943.

This war emergency specification gives the reduced widths across flats and thicknesses (smaller than the normal 'Whitworth' dimensions), with definitions of overall length and length of thread for bolts and nuts of nominal diameters from 1/4 to 6 in. inclusive.

917 : 1940 Envelopes, terms and sizes of

8pp. 2s. Amendment PD 24, September 1942.

Defines the various forms of banker and pocket envelopes and includes a key range of standard sizes.

919 : 1940 Screw thread gauge tolerances.†

NZ AS

14pp. 2s. Amendment PD 207, January 1944.

The tolerances recommended in this specification are intended to apply primarily to gauges for screw threads in the regular series such as B.S.W., B.S.F., B.S. Pipe (parallel), B.A. down to No. 7 and 'brass' threads. They may be applied also to gauges for any screw threads of Whitworth form or of Metric (S.I.) form. Tables of tolerances are given for plug, ring and calliper, workshop and inspection gauges. Appendix gives a note regarding simple effective diameter and effective diameter equivalents of pitch and angle errors.

920 : 1940 Naval brass die castings.†

NZ

7pp. 2s.

The chemical composition, manufacture, provision of test samples and tensile-test requirements are stated for the ingots and also for the die castings.

921 : 1940 Rubber mats for electrical purposes.

SA NZ

11p. 2s. Amendments PD 112, May 1943, superseding previous amendment : PD 375, August 1945.

The mats covered by this specification are rubber insulating mats for use as a floor covering near electrical apparatus in circumstances involving the possibility of direct contact with equipment of which the voltage does not exceed 3300 volts to earth. Constructional requirements are stated, together with thickness and weight, electrical, mechanical and ageing tests, workmanship, and marking. The methods for carrying out the tests are described.

922 : 1940 Domestic electrical refrigerators.

SA

20pp. 2s.

The methods of computation of cabinet volume and food-storage surface area are defined ; general constructional requirements are stated, together with requirements regarding performance of motors, wiring of the electric circuits, pressure, cabinet air temperature, and electrical tests. A table of minimum test-pressures of refrigerants, and sketches showing positions of temperature-measuring instruments in the cabinet are given.

923 : 1940 Impulse-voltage testing.

AS SA

8pp. 2s.

This specification is based on the recommendations of the International Electro-technical Commission as given in I.E.C. Publication 60 : 1938. Definitions are

† War emergency issue.

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given, followed by an account of the general principles for impulse-voltage testing, covering the generation of impulse voltages, measurement of wave-shapes, standard wave-shapes, and the measurement of impulse voltages.

924 : 1943 Rubber hose with woven fabric reinforcement.[†]
20pp. 3s. 6d. Amendment PD 360, June 1945.

NZ

This specification has been based on the proposals of the Technical Advisory Committee to the Rubber Controller for maximum raw rubber percentages embodied in Rubber Control Order No. 17 limiting the use of rubber in hose. It deals with mandrel-built, wrap cured rubber hoses internally reinforced by plies of woven fabric, manufactured in lengths not exceeding 60 ft. for the following types :

Air hoses : pneumatic tools, rock drill,
mining and coal cutter.

Water hoses : low and high pressure.

Oil grease and solvent hose.

Chemical hose.

Brewers' and Ford hose.

Garden hose.

Radiator hose.

Oxy-acetylene hose.

Sandblast hose.

Steam hoses : low and high pressure.

For each type clauses cover construction, dimensions and tolerances, rubber content, marking and physical tests on the finished hose. Details of the methods of carrying out the tests specified are given.

925, 926 : 1940 Oils, thinners, driers and extenders for paints.
30pp. 2s.

925. Oil (linseed oil base).[†]

926. Additional extenders.[†]

The foreword gives a review of, and modifications to, existing standards referring to oils, paint thinners, driers, putty and extenders. Specification No. 925 then gives specific requirements for oil for paints, with appropriate methods of test. Specification No. 926 provides a series of specifications for the following extenders: barytes, Type B; precipitated barium sulphate; china clay; kieselguhr; strontium sulphate; whiting (paris white); witherite; and miscellaneous extenders. Detailed specification requirements are scheduled, with appropriate methods of test.

927, 928 : 1940 Pigments for paints : white, black and coloured.[†]
23pp. 2s. Amendment PD 29, August 1942.

927. Alternatives for lead and zinc chromes.

928. Alternatives for Brunswick or chrome greens and green oxides of chromium.

A list of alternative pigments is given and the other pigments and extenders with which they may be used in admixture are listed. Specifications for the alternative pigments include requirements in respect of coarse particles, oil absorption, colour, stability of colour, staining power, volatile matter, matter soluble in water, and 'bleeding' test. Sampling technique and the methods of test are described in Appendices.

929 : 1943 Ready-mixed paints, priming paint, undercoating paints, finishing coat paints : oil gloss.[†]
11pp. 2s. Amendment PD 196, December 1943.

Compositions of the three classes of paint are scheduled in tables 1, 2 and 3, and requirements are laid down in respect of the quality of all materials used. General clauses specify drying time; colour, opacity, finish and consistency; fastness to light; water content; flash point; and keeping qualities. Sampling technique and the methods of test are described in the appendices.

[†] War emergency issue.

B.S.

- 930 : 1940 Carrying out a field test for light output of sub-standard cinematograph projection, method of
9pp. 2s.

The apparatus required and the method of carrying out the test is described and illustrated.

- 931 : 1940 Loco.-type multitubular boilers.

SA

43pp. 3s. 6d.

Applies to loco.-type multitubular boilers for stationary, semi-portable or portable purposes and to loco.-type boilers for road rollers and traction engines but not to railway locomotive boilers. Deals with materials, construction, workmanship, scantlings, inspection and testing. Material specifications are included for steel plates, rivets and bars and for tubes. The rules in regard to workmanship and construction deal with the cylindrical barrels, butt straps, outer casing plates, firebox plates, smokebox tube plates, angle rings, stays, compensation, seatings for mountings, rivet holes and riveting. The rules for scantlings include formulae for determining the thickness of barrels, butt straps, flat surfaces and tube and firebox plates together with formulae for the calculation of the efficiency of riveted joints and for the pitch and spacing of rivets. The thickness and pitch of tubes is specified together with requirements as to the various types of stays. Inspection during construction is also stipulated together with details of the hydraulic test.

- 932 : 1940 Brass gravity die-castings.†

NZ

7pp. 2s.

The chemical composition, manufacture, provision of test samples and tensile-test requirements are stated for ingots and also for the die-castings.

- 933 : 1941 Magnetic materials for use under combined D.C. and A.C. magnetisation.

43pp. 3s. 6d. Amendment PD 243, April 1944.

This specification supplements existing magnetic testing specifications primarily by providing for the important case of incremental magnetisation : that is, magnetisation by combined A.C. and D.C. The materials dealt with are silicon steel sheets of varying silicon content, and nickel-iron strip. Definitions are given, and requirements are stated for the materials. Appendices describe the methods of test, which include in particular the measurement of incremental permeability and loss extending into the audio-frequency range.

- 934 : 1940 Vulcanised fibre (natural colour) rods and tubes for electrical purposes. SA NZ
20pp. 2s. Amendment CF 7629, March 1941.

This covers rods from $\frac{1}{4}$ to 1 in. diameter, and tubes from $\frac{1}{4}$ to 2 in. internal diameter, with wall thicknesses from $\frac{1}{32}$ to $\frac{1}{4}$ in. Requirements for rods and tubes are given separately, and cover : tolerance on dimensions ; density ; shrinkage in air ; electric strength and surface breakdown in air (for tubes only) ; tensile strength ; water absorption ; moisture loss ; machining tests ; and freedom from chlorides. The methods of test are described in detail.

- 935 : 1941 Photographic exposure tables.†

11pp. 2s. Amendment CF 8502, August 1941.

These exposure tables enable the appropriate values of exposure time and lens aperture to be selected for use under various conditions. The principal factors affecting exposure, namely : 1. weather conditions, 2. geographical latitude, time of year and time of day, and 3. type of scene, are all considered. The method of using the tables is described.

- 936 : 1940 Oil circuit-breakers for alternating current circuits up to and including 660 volts.†
75pp. 3s. 6d.

This applies to single-phase and three-phase circuits and for breaking capacities not exceeding 44 000 A, but not to motor starters or contactors. The whole

† War emergency issue.

B.S.

problem of circuit-breaker operation is exhaustively dealt with so far as knowledge at present extends. Ratings extending to various types of tripping and closing mechanisms are prescribed, also general routine and type tests. Measurement of power factor, recovery voltage, short-time currents and short-circuit currents are fully dealt with.

- 937 : 1940 **Flexible cords for miners' cap lamps.** NZ
7pp. 2s. Amendment PD 210, January 1944.

This specification aims at ensuring reliability of the flexible cords under the arduous conditions to which they are subjected in service. Constructional features, electrical and dimensional data, and tests are dealt with.

- 938 : 1941 **Metal arc welding as applied to tubular steel structural members.** SA
20pp. 2s.

The quality of steel and of the electrodes are specified and details of butt joints and fillet welds are given. Stresses are specified and requirements of workmanship stated. Test methods are given, and notes on design of joints in tubular steel construction are added.

- 939 : 1941 **Engineers' squares.** AS NZ SA
19pp. 2s.

This specification applies to engineers' steel squares, in which the blade is fixed relative to the stock. It covers three grades of accuracy, namely, Reference, inspection, and workshop. Matters dealt with include nomenclature, designation, material, general features, nominal sizes, accuracy, finish, case, packing, and marking. Detailed descriptions are given of various methods of testing squares, together with some general notes on the design of squares.

- 940 : Part 1 : 1944 **Grading rules for stress-graded timber.**
20pp. 2s.

The grading rules relate to European larch, European whitewood, and European redwood.

Stress gradings are given for 1200 lb., 1000 lb. and 800 lb. in bending and 1200 lb., 1000 lb. and 900 lb. in compression.

The maximum permissible defects in various sizes of timber are specified.

The factors to be included for timber according to the conditions of the exposure, together with information on shrinkage, moisture content, density, rate of growth, etc., are also included.

- 940 : Part 2 : 1942. **Grading rules for structural timber for purposes where the stresses in timber are known.**
34pp. 2s.

This standard covers the stress grading of timbers from the U.S.A. and Canada. For each of the timbers covered the working stress is specified according to the maximum defects that are permitted. Limitations are placed on knot sizes, shakes and checks wane, and slope of grain. The moisture content, deviation from size and factors for the stress when the timber is used in exposed conditions are also given.

- 941 : 1941 **Electric lamp bulbs for automobiles (6-volt and 12-volt bulbs for head, side and rear lamps).** NZ
20pp. 2s. Amendments PD 16, September 1942 ; PD 90, March 1943.

This specification covers 6-volt and 12-volt bulbs for head, side and rear lamps of motor cars and the motor-car class of goods vehicles. It is not intended to cover lamps for public service vehicles or for heavy duty commercial goods vehicles. Dimensions, initial rating and life performance are prescribed, together with selection of lamps for test, conditions of test, and rejection of lamps.

B.S.

- 942 : 1941 **Formulae for calculating the intensities of lighthouse beams and beams from cognate projection apparatus.**
41pp. 3s. 6d.

This contains a number of definitions of optical terms used and a description of various types of beam projectors in use, including the nature of the light source, and the nature of the beam in shape, movement and colour. Formulae are given for brightness, intensity, light duration of rhythmic beams, and losses through glazing and atmospheric conditions, with a table of geographical range for different heights above sea level. Appendices deal with colour filters and ranges over which lights can be seen. A table of symbols is included with 14 figures of lens systems and curves of various formulae and quantities.

- 943 : 1941 **Speed of a specific sample of a photographic negative material intended for snapshot work in daylight, method to determine the†**
8pp. 2s.

The conditions to be maintained before carrying out the test are stated and the matters dealt with include the handling of the material, the light source, exposure of film, development, fixation, washing, drying, speed criterion, and method of calculation of the speed numbers.

- 944 : 1941 **Cast brass bars (suitable for forging) and forgings.†** NZ SA
10pp. 2s.

This specification contains details of chemical composition, manufacture and tensile and forgeability tests prescribed with an Appendix giving dimensions of test pieces to be used.

- 945 : 1943 **Rubber and insertion jointing for flange and similar joints subject to water pressure, l.p. steam and h.p. steam.†** NZ
13pp. 2s. Amendment PD 324, January 1945.

The quality and composition of the material is specified and test requirements for hardness, tensile strength, elongation and permanent set, adhesion and cracking are stated. Fabric reinforcement is specified. Methods of testing are described.

- 946 : 1941 **Designation of twist in single yarns, folded yarns and cables.**
6pp. 1s.

This specification illustrates the S and Z slopes of the spirals in twisted yarn. The direction of twist in successive operations is described with provision for identifying more complicated arrangements.

- 947 : 1941 **Yarn count systems and conversions.**
7pp. 1s.

This standard provides a list of lengths per unit weight for various types of material ranging from asbestos to spun silk in hanks (of different length content) per lb. followed by figures for standard systems for the various materials and conversion factors which are tabulated for ease of reference together with a table of useful constants.

- 948 : 1941 **Cooking tests for gas ovens.**
23pp. 2s.

Provides for a series of cooking tests covering four classes of ovens graded in cubic content from 750 to 4000 cu. in. The tests include a high temperature test, heat distribution tests (with and without trays), low temperature long-period test, full load test and an optional sole-heat test.

† War emergency issue.

B.S.

- 949 : 1941 Screwing taps, Dimensions, limits and tolerances for** NZ*AS
68pp. 10s. 6d. Amendment CG 442, May 1942.

The specification relates to hand, nut, and Pearn tapper taps with B.S.W., B.S.F., B.S. pipe (parallel) and B.A. threads. The general overall dimensions are prescribed, with manufacturing tolerances. Complete schedules of thread tolerances are given for two grades of ground thread taps and two grades of cut thread taps. An appendix gives schedules of tolerances for specially selected B.S.F. and B.A. taps for special purposes.

- 950 : 1941 Artificial daylight fittings for colour matching.** NZ
14pp. 2s.

This specification covers sources of light so designed that the light emitted by them is sufficiently close to daylight in both colour and spectral energy distribution to enable these sources to be used for colour-matching or similar purposes. Tests are specified for determining the colour of the light, spectral energy distribution, and permanence. Details of the standard illuminant C, and of the properties of standard filters are set out in the Appendix.

- 951 : 1941 Earthing clamps for use on metal pipes of internal diameter up to 3 in.**
15pp. 2s.

This specification prescribes the size ranges, the performance and certain mechanical features of metal clamps intended for connecting earthing-leads and earth-continuity conductors of electrical installations to metal pipes of a nominal internal diameter up to 3 in. (corresponding to external diameters up to $3\frac{3}{4}$ in.). Appendices give methods of test, and notes on the relation between internal and external diameters of water pipes and electrical conduits.

- 952 : 1941 Glass for glazing, including definitions and terminology of work on glass.**
35pp. 3s. 6d. Amendment PD 320, December 1944.

Part 1 of this specification gives standard thicknesses and tolerances for the various types of glass used in building. They are grouped into three broad classes, viz. : transparent, translucent, and opal or opalescent. Part 2 covers the terminology of work on glass, descriptions being given of typical methods of working, viz. : cutting processes, obscuring processes, decorative use of obscuring processes, silvering, gilding, staining or painting and firing, and bending.

- 953 : 1945 Protective toe-caps of boots used for industrial purposes, strength tests for the.**
12pp. 2s.

Strength tests for two grades, A1 and A2, of steel toe-cap are prescribed. Grade B toe-caps, which were included in the 1941 edition, are no longer recognised as standard. The size of boot selected for the test, point of depression measurement, method of impulse testing and location of depression indicator are specified.

- 954 : 1941 Lac.**
31pp. 2s.

In this specification, the special requirements of different users of lac have been met by detailing first those clauses which apply generally irrespective of use, followed by clauses which have a specific application as, for example, to electrical use. The requirements concern form and condition, sampling, and physical and chemical properties. The methods of test are described.

- 955 : 1941 Spectacle-type goggles for protection against flying particles.**
14pp. 2s.

The terms 'lens' and 'lens fracture' as used in this specification are defined and particulars of the material, dimensions, and tests for lenses are given. Details of frames are also listed. The tests include several for lenses and the apparatus to be used is illustrated. Attention is directed (in the foreword) to important points to be observed.

* With local amendments.

B.S.

- 956 : 1941** Schedule of tins and cans for food products and tobacco for the Admiralty, the Army, the Royal Air Force and the British Red Cross (prisoners of war).†
18pp. 1s.

This schedule includes types and sizes of metal containers not included in B.S. 866 and 993 (q.v.) for use by Government departments and the British Red Cross.

- 957 : 1941** Feeler gauges. NZ
8pp. 2s.

This specification applies to feeler gauges, comprising a series of gauging blades of graded thicknesses in inch units, assembled in a protective sheath. Provision is made for blades of thicknesses from 0.0015 in. to 0.025 in. inclusive. Matters dealt with include material, dimensions of blades, limits of accuracy, finish, sheath, marking, and packing. Recommended combinations of blades are given.

- 958 : 1941** Precision levels for engineering workshops. NZ
11pp. 2s.

This specification relates to levels of high sensitivity as used for the installation and testing of machine tools, and for the testing of surface plates and tables. Three types of levels are covered and the specification deals with general features, recommended scales and sensitivities, finish and accuracy of working faces, zero setting, calibration, case, packing, and marking. Notes on sensitivity, mounting, calibration, and methods of use are given.

- 959 : 1941** Internal micrometers. NZ
14pp. 2s.

This specification applies to internal micrometers comprising a measuring head, extension rods with or without spacing collars, and, in the smaller sizes, a handle. Three sizes of measuring heads, in both inch and metric units, are specified. Clauses cover material, thimble and barrel, micrometer screw, extension rods, spacing collars, adjustment for zero setting, accuracy, handle, case, packing and marking. Notes on the rigidity of internal micrometers, and on the method of testing, are given.

- 960 to 965 : 1941.** Leaded bronze castings and ingots. NZ
21pp. 2s. Memorandum PD 1, July 1942.

- 960. 85/10/0/5. Leaded bronze ingots.
- 961. 85/10/0/5. Leaded bronze castings.
- 962. 80/10/0/10. Leaded bronze ingots.
- 963. 80/10/0/10. Leaded bronze castings.
- 964. 76/9/0/15. Leaded bronze ingots.
- 965. 76/9/0/15. Leaded bronze castings.

For each specification included in this series the chemical composition, conditions of chemical tests or production of works analysis, quality of material and mechanical test requirements are specified together with details for the provision of test samples.

- 966 : 1941** High-tension batteries for hearing aids.
10pp. 2s. Amendment CF 8252, July 1941.
This specification applies to batteries constructed from unit cells of 13.5 mm. diameter and 40 mm. overall length. The following details of standard batteries are stated: nominal voltage, dimensions, tappings; dimensions of exposed portion of brass terminal strips; and details of sockets.

- 967 : 1941** Identity photographs.†
6pp. 2s.
This standard lays down particulars of identity photographs as basic guides to:
a. General standards contributing to the production of efficient identity photographs.

† War emergency issue.

B.S.

b. The design and construction of special cameras for the making of these photographs.

Matters dealt with include size of photograph ; description of photograph ; paper for photograph ; sizes of roll film, plates and sheet film ; and size of negative image.

968 : 1941 High tensile (fusion welding quality) structural steel for bridges, etc., and general building construction.†

16pp. 2s. Amendment PD 142, August 1943.

The steel specified herein is suitable for fusion welding but *not* for forge or smith welding being limited to a type containing a maximum carbon content of 0.23 per cent, viz., high tensile fusion welding quality steels (H.T.W. steels). The process of manufacture, quality, and tolerances in lengths, etc., are prescribed ; also tensile and cold bend tests with a table of rolling margins permissible and particulars of standard forms of test pieces.

969 : 1941 Tolerances for plain limit gauges.†

27pp. 2s. Amendments CF 9397, February 1942 ; PD 287, October 1944.

This specification includes a series of tables in inch and metric units for the tolerances on workshop and inspection plug ring and gap gauges. The gauge tolerances are based directly on a graded series of work tolerances ranging from 0.0003 in. to 0.2 in. The introductory test explains the principles underlying the relationship between the tolerances on the work and the tolerances on the gauges, and draws a careful distinction between workshop and inspection gauges and their use in the correct production of work. The particulars to be marked on the gauges, and the manner of prescribing the limits on drawings for gauges, are fully explained by illustrated examples.

970 : 1942 Wrought steels in the form of bars, billets, light forgings and stampings up to 6 in. ruling section for general engineering purposes.† (En series.) NZ

115pp. 5s. Superseding B.S. 5005, 5008, 5010 and part of 5006. Amendments PD 281, September 1944, incorporating previous amendments ; PD 338, February 1945.

This schedule contains a series of some 60 wrought and alloy steels for general engineering purposes and is called the En series. The first section on general clauses includes definitions of heat treatment, terms and details of taking test specimens, etc. For each steel the chemical composition, heat treatment and mechanical properties according to size of bar are specified.

971 : 1944 Wrought steels (carbon and alloy steels). T.A.C. 1-33. (Companion document to B.S. 970, dealing with steels. En. 1-58.)†

98pp. 7s. 6d.

This document reproduces that section of the interim report of the Technical Advisory Committee (T.A.C.) on wrought and special alloy steels which covers the range of steels used in general engineering. The chemical composition, condition and mechanical properties specified for these steels in a large number of different specifications—British Standard—Government departments, etc., are tabulated and the steels grouped in classes to each of which is given a T.A.C. No. Commentaries are included describing the type of steel covered by each of these classes. Notes are also included on the heat treatment of the steels and on the effect of mass on the mechanical properties.

972 : 1941 Synthetic-resin bonded fabric sheet for electrical and mechanical purposes.†

18pp. 2s. Amendment PD 410, October 1945.

This specification covers three types classified according to the number of threads per inch in warp and weft, and for a range of thickness from $\frac{3}{64}$ in. to 4 in. with a recommendation that the material should not be used for voltages greater than 660V. or temperatures higher than 90°C. Mechanical electrical properties are prescribed, and methods of test are described.

† War emergency issue.

B.S.

- 973 : 1945** **Code of practice for the glazing and fixing of glass for buildings.**
14pp. 2s.
Definitions are given, and rules are laid down for carrying out the various methods of glazing and fixing. The Appendix gives notes with regard to the normal conditions governing glazing and fixing.
- 974 : 1941** **Symbols for use on diagrams of chemical plant.** SA
14pp. 2s.
The symbols are tabulated and examples given of combinations of symbols for basic units to denote composite items of plant.
- 975 : 1941** **Density-composition tables for the aqueous solutions of nitric acid for use in conjunction with British Standard density hydrometers.** NZ
58pp. 3s. 6d.
The tables, based on data from the 'international critical tables,' give density in g./ml. of the aqueous solution, mass in g. of HNO_3 in 100g. of aqueous solution, and mass in g. HNO_3 in 1 l. aqueous solution. Notes on the use of B.S. hydrometers are given.
- 976 : 1941** **Density-composition tables for the aqueous solutions of hydrochloric acid for use in conjunction with British Standard density hydrometers.** NZ
31pp. 3s. 6d.
The tables, based on data in the 'international critical tables,' give density in g./ml., mass in g. of HCl in 100 g. aqueous solution, and mass in g. of HCl in 1 l. aqueous solution. Notes on the use of B.S. hydrometers are added.
- 977 : 1941** **Flexible cables for power and control circuits of electric lifts.** SA
8pp. 2s.
Size and quality of conductor are specified, together with requirements regarding insulation, tape on core, identification of cores, cabling, and tape over cores. Electrical, fire resistance, and flexibility tests are prescribed.
- 978 : 1941** **Gears for clockwork mechanisms.†**
19pp. 2s. Amendment PD 51, December 1942.
The mechanisms covered by this specification include gears such as are used in clocks, watches, meters and instruments. Standard sizes (in terms of the module), form of gears, tolerances on gears, and details of form and dimensions of hobs and cutters are specified, and diagrams show tooth form for gears and recommended shape of milling cutters.
- 979 : 1941** **Test code for open-hearth melting furnaces for the refining of steel.**
93pp. 5s.
Provides for two tests, a comprehensive code for the complete evaluation of the performance and efficiency and a short simple code for carrying out, at a minimum cost, a test of a furnace as an effective and economical heating unit. The codes provide for the testing of furnaces fired by solid and liquid fuels, town gas, blast furnace gas, coke oven gas, mixed or other clean gas. Recommendations are included in regard to furnaces fired by hot producer gas.
- 980 : —** *Not yet issued.*
- 981 : 1941** **Special and alloy steels for seamless tubes.†**
20pp. 2s.
This document reproduces that section of the interim report of the Technical Advisory Committee on wrought and alloy steels which relates to tube steels. The chemical composition and mechanical properties of a number of existing specifications (British Standard and Government department) are summarised classified under a T.A.C. No.

† War emergency issue.

B.S.

982, 983 : 1941 Definitions of furnishing fabrics and miscellaneous textile merchandise for the distributive trades.†
18pp. 1s. Amendments CF 8501, August 1941; CF 9207, December 1941; PD 8, July 1942.

982. Furnishing fabrics.

NZ

983. Miscellaneous textile merchandise.

NZ

The specification covers figured fabrics, pile fabrics, plain and printed fabrics and ret. Miscellaneous textile merchandise includes American cloth, buckram, canvas, leather cloth, muslin, wool and rubber apron, holland, oiled silk and cambric and various kinds of canvas, and stockinette.

984 : 1941 Weights of packages of woollen and worsted knitting yarns, prepared in respect of yarns intended for retail sale.

8pp. 2s.

This lays down standards of moisture regain to enable the correct conditioned weight of yarns to be calculated for commercial purposes. Nominal weight, standard weight, moisture regain, method of test, and marking are specified, and notes are given on tolerances on the weight.

985 : 1941 Combined drills and countersinks, dimensions of†

NZ

8pp. 1s.

These drills are commonly known as 'centre drills.' The specification gives the dimensions for a simplified war emergency range of seven sizes from $\frac{1}{8}$ in. to $\frac{3}{4}$ in. diameter. The angles of drill and countersink, finish, and marking are specified.

986 : 1945 Concrete railway sleepers.

22pp. 2s.

Covers data for the design and manufacture of ordinary reinforced and pre-stressed concrete sleepers for standard 4 ft. 8½ in. gauge railway tracks for sidings, tertiary, secondary and primary tracks.

In each class transverse sleepers, block sleepers connected by tie bars and block sleepers unconnected by tie bars are provided for.

987 : 1942 Camouflage paints.†

21pp. 2s. Appendix F of B.S. 987 'Camouflage paint surfaces chart' is issued as a separate document. Ref. No. CG 579, 7pp. 6d.

Requirements are stated in respect of : consistency ; opacity, colour and finish ; drying time ; reflection value ; water resistance ; cement test ; accelerated weathering test ; and hardness test. For paint for application to asphalt or bituminous surfaces there is also a special requirement in respect of composition. The methods of test are described in Appendices. Recommendations as to the treatment for different surfaces, are summarized in a chart.

987C : 1942 Camouflage colours.†

4 plates. 1s. 6d.

This consists of a series of plates showing eleven standard colour shades for camouflage paints.

988 : 1941 Mastic asphalt for roofing, type A (limestone aggregate).

13pp. 2s. Amendment PD 386, August 1945.

This specification provides for the following types of material, designated as type A: Mastic asphalt for roofing composed of limestone aggregate incorporated with either :

a. Asphaltic bitumen, or

b. Equal proportions of asphaltic bitumen and refined lake asphalt.

Grading of aggregate, properties of asphaltic cement, composition by analysis of mastic asphalt, and hardness are prescribed. Recommendations for application of mastic asphalt, and notes on the treatment of surfaces with paint for camouflage or other purposes are included.

† War emergency issue.

Bitumen and fluxed pitch roofing felts.†

22pp. 2s.

The revision separates into two distinct parts the bitumen roofing felts and the fluxed pitched roofing felts.

In each part the classification specification of the roofing felt and the Appendix dealing with the fluxed pitch are unaltered, but the specification for roofing has been considerably tightened as the result of experience gained.

The specification for the felt covers the weight of constituent materials, the base, the saturant and coating material : whilst the specification for the roofing is divided into single-layer work on sloping and Belfast type roofs and vertical surfaces capable of being nailed and two-layer work on flat roofs and gutters and covers the weight of felt to be used, the fixing, lap, flashings and fillets, the eaves, ridge, gutters, expansion joints and dressing.

Metal casement windows and casement doors for domestic buildings.

62pp. 3s. 6d.

The specification provides for a range of metal casement windows and doors. The windows may be obtained without bars or with horizontal bars only, or with horizontal and vertical bars. Other details included relate to the standard size of metal sections to be used for windows and for doors, fixing arrangements and fittings. Arrangements for bay type windows are also given. The glass sizes for the windows are set out fully in an Appendix and information is also given about provision for fixing curtain rod brackets and ventilator securing devices. Requirements are laid down for the quality of material, construction, fittings, finish, etc.

Data on cast iron.

NZ

26pp. 5s.

A classification of cast irons is given, with notes on mechanical physical and other properties, surface and heat treatment of various kinds of cast iron. A list of B.S. specifications relating to cast iron is added.

Test code for fuel fired melting furnaces used in the non-ferrous metals industry.

57pp. 3s. 6d.

NZ

This code provides for (a) a simple code for effective and economic performance of this type of furnace, (b) a comprehensive code for complete evaluation of the performance and efficiency of such furnaces. Detailed particulars are listed in a number of sheets which when completed are sufficient to furnish a complete report on the tests, including all necessary data and covering all normal conditions met with, such as recuperation, sensible heat in flue gases, etc., leading to a complete statement of thermal input and output and furnace performance.

Drums and sheet steel containers for British packers in the United Kingdom for the home trade.†

67pp. 3s. 6d. Amendments PD 380, August 1945 ; PD 428, November 1945.

This schedule issued with the approval of the Ministry of Supply is made mandatory by the Control of tins, cans, kegs, drums and packaging pails, Orders Nos. 5 to 9. In it are specified the types and sizes of drums, kegs and packaging pails permitted for all home trade commodities other than those purchased by Government departments.

1 Centrifugal and axial flow pump specifications and data required for estimates and orders.†

NZ

7pp. 2s.

Standard technical conditions are specified for head, discharge, efficiency, characteristic curves, hydraulic test, duration of test and dismantling for application to wartime specifications. Part two includes a list of the particulars required by manufacturers for estimates or orders.

† War emergency issue.

B.S.

- 995 : 1942 **Test code for gas producers.**
57pp. 3s. 6d.

This test code applies to gas producers of all descriptions except slagging producers and portable producers. It contains all the necessary data for the determination of the performance of the plant together with a full explanation as to how the necessary observations should be made. Notes on guarantee tests are included in an Appendix.

- 996 : 1942 **Test code for the performances of drying ovens and commercial acceptance tests of fuel-fired bakers' ovens.**
81pp. 5s.

This test code applies to direct-fired and indirect-fired ovens (fired by solid, liquid or gaseous fuels) including amongst others those for the drying of ceramic products, paints and enamels, corn and food products. Two types of test are covered, an industrial test for ordinary commercial use and a comprehensive test for research and similar purposes. The code is readily adaptable to provide for the commercial testing of special types of drying ovens and as an example a commercial acceptance test for bakers ovens has been included in an Appendix. The codes contain all the necessary data for the determination of the performance of the plant together with a full explanation as to how the necessary observations should be made.

- 997 : 1941 **Crude sperm oil.**
15pp. 2s.

SA

This specification covers specific gravity, iodine value, viscosity, cold test, saponification value, acidity and unsaponifiable matter. Sampling and test methods are described.

- 997 : Part 2 : 1943. **Filtered sperm oil.**
11pp. 2s.

This specification provides for the product obtained after separation of spermaceti from crude sperm oil (B.S. 997). The specification is similar in form to B.S. 997.

- 998 : 1941 **Pure vacuum salt for dairy purposes.**
11pp. 2s. Amendment CG 80, April 1942.

Applies to both dried and undried vacuum salt for dairy purposes as packed by the manufacturer. The specification covers chemical purity, moisture and fineness of grain of dried salt and includes limits for impurities. Sampling and test methods are described and details of packing are included.

- 999 : 1942 **Test code for coke ovens.**
46pp. 3s. 6d. Amendment PD 252, May 1944.

This test code applies to by-product coke ovens. It contains all the necessary data for the determination of the performance of the plant, and of the yields and qualities of the saleable products, together with a full explanation of how the necessary observations should be made. Purely scientific data not considered to be of importance to the operation of the plant are omitted.

- 1000 : 1943 **Universal decimal classification.**

This consists of an English translation of various sections of the 'Universal decimal classification of knowledge' (U.D.C.). This system is an extension of the decimal classification originated by Melvil Dewey and has been prepared by the Institut (now Fédération) International de Documentation (F.I.D.), with the collaboration of leading specialists in many countries. Editions in French and German have already been published under the auspices of the F.I.D. Parts already available are :

1000 : Vol. 1, Part 1. **General Introduction. Auxiliary Tables. Class O, Generalities.**

60pp. 4to. 7s. 6d.

B.S.

1000 : Vol. 2, Part 1. Classes : 50, General works on pure science ; 51, Mathematics ; 52, Astronomy, Geodesy ; 53, Physics.
103pp. 4to. 10s.

1000 : Vol. 2, Part 2. Class 54. Chemistry.
77pp. 4to. 10s.

1000 : Vol. 2, Part 3. Classes : 55 Geology, geophysics ; 56 Palaeontology ; 57 Biology ; 58 Botany ; 59 Zoology.
91pp. 4to. 10s.

1001, 1002 : 1941 High tensile brass bars and sections (suitable for forging) and forgings.†
17pp. 2s. N.Z.

1001. High tensile brass bars and sections (suitable for forging, also suitable for soldering).

1002. High tensile brass bars and sections (suitable for forging) and forgings (not suitable for soldering).

These specifications cover two types of bars and sections : one suitable for soldering (B.S. 1001) and the other not suitable for soldering (B.S. 1002). In the case of each specification, Part 1 specifies the chemical composition and mechanical properties of the bars and sections, whilst Part 2 specifies the test requirements for the forgings. A Part 3 covers inspection and testing facilities. Appendices give dimensions of tensile test pieces, with approximate metric equivalents.

1003, 1004 : 1942 High purity zinc and zinc alloys.
14pp. 2s.

1003. High purity zinc.

1004. Zinc alloys for die casting.

B.S. 1003 standardises the chemical composition of high purity zinc. B.S. 1004 is in two parts, referring respectively to alloy ingot metal and to the die castings manufactured from the ingots. The specification provides for two types of alloy ingot metal, designated as alloy A and alloy B, whose compositions are specified. Requirements of the corresponding die castings are specified. The Appendices give the methods of test for castings and notes on distinctions between alloys A and B.

1005 : 1942 Sampling and analysis of high purity zinc and zinc alloys for die castings.
20pp. 2s.

This specification sets out the methods of sampling and analysis to be adopted for the examination of the zinc and zinc alloys covered by B.S. 1003 and 1004 respectively. The analysis involves determinations of aluminium, copper, magnesium, iron, lead, tin and cadmium.

1006 : Part 1 : 1942 Fastness to light of textiles, method of test. NZ
7pp. 2s.

British Standards of fastness to light consist of eight blue dyeings and are dyed on wool material. The specification covers the standard range of colours, size of patterns, method of test, daylight exposures, and artificial light sources.

1006 : Part 2 : 1942 Fastness to light of coloured textiles. Reference standards. NZ
8 pattern samples. 5s.

This consists of a bunch of patterns of eight standard colours for use as reference standards in connection with Part 1 of B.S. 1006.

1007 : 1942 British and American specifications for non-ferrous metals, summary of
120pp. 10s. 6d.

A set of tables giving composition limits and approximate ultimate tensile stress, of British Standard Ministry of Aircraft Production D.T.D. Standards and the corresponding American Standards agreed by such organisations as the Society of Automotive Engineers, American Society of Testing Materials, etc.

† War emergency issue.

B.S.

- 1008 : 1942** **Quality control and control chart method of analysing data, guide for†**
49pp. 3s. 6d. Memorandum PD 117, June 1943, superseding previous memorandum.
This is a reproduction of the American Standards Z1.1 and Z1.2. A general description of the control chart is given and detailed instructions in its use are set out. Formulae and tables for application of the control chart method of analysis are given and worked examples are added.
See also B.S. 600.

1009 : 1942 *Under revision.*

- 1010 : 1944** **Water taps, bib, pillar, globe and stop.**
40pp. 2s. Amendment PD 369, June 1945.
This specification supersedes the edition of 1942 which was issued for war emergency purposes in order to conserve materials. That edition was based on the Ministry of Health's model specification, which the present edition is intended to supersede together with that known as the J.C.S.W.R. design of the British Waterworks Association.
The specification gives the requirements of bib, pillar, globe and stop taps from ¼ in. to 2 in. sizes and covers the materials, the workmanship of castings, hot pressings, and machining, and lays down provisions in respect of thickness of parts ; waterway ; screw, spindle and head threads ; tap bodies ; washers and washer plates ; gland packing ; union connections, etc. A marking clause requires that taps shall be legibly marked with the manufacturer's name or mark, the nominal size and the B.S. number.
All taps must be tested under hydraulic pressure of at least 300 lb./sq. in. without leaking or sweating. Illustrations of typical designs of each type covered are provided, together with fully detailed tables of dimensions of bodies ; heads and glands ; crutches ; spindles and washer plates ; details of Whitworth screw threads and of parallel spigot and cone end tail pipes.

- 1011 : 1942** **Red lead ready mixed paints.**
12pp. 2s. Amendment CF 9239, March 1942.
The paint shall be one of two types, viz., Type 1, genuine red lead paint ; Type 2, red lead paint. The compositions of the two types are specified, and requirements are stated in respect of : drying time ; colour, opacity, finish and consistency ; fastness to light ; water content ; flash point ; and keeping properties. Sampling technique and the methods of test are described in the Appendices.

- 1012 : 1942** **Schedule of sizes of composite containers for British packers in the United Kingdom for the home trade.†**
23pp. 2s.
This wartime schedule is made mandatory by the Control of Packaging Order of the Ministry of Supply. It specifies the civilian usages for which composite containers are permitted and the types of containers and sizes of packs allowed.

- 1013 : 1942** **Sanitary or disinfectant powders.**
8pp. 2s.
Provides for carbolic, hypochlorite and other powders. In the case of carbolic powders, tests are included for germicidal efficiency and phenols content and in the case of hypochlorite powders available chlorine content is specified.

- 1014 : 1942** **Pigments for colouring cement, magnesium oxychloride and concrete.** SA
18pp. 2s.
The specification is in seven parts, referring respectively to : chromium oxide, manufactured hydroxides of chromium, red oxide of iron, carbonaceous blacks, black oxide of iron, yellow oxide and hydroxide of iron (including natural ochres), and brown oxide of iron (including sienna and umber). In each case the material is described, and requirements laid down in respect of composition, colour and staining power, etc. Sampling and testing are described in the Appendices.

† War emergency issue.

B.S.

- 1015 : 1942** Exciter lamps for 35 mm. projectors.
13pp. 2s. Amendment PD 20, August 1942. SA NZ
The dimensions of lamps and caps and the quality of bulbs and filaments are specified. Initial rating and life performance is stated and selection methods for testing and test requirements are given.
- 1016 : 1942** Analysis and testing of coal and coke, methods for the NZ
120pp. 5s. Amendment PD 85, February 1943. (Appendix PD 27 : September, 1942, 15pp. 2s.).
The specification covers methods of sampling, with special reference to moisture content, preliminary analysis for moisture, volatile content and ash, ultimate chemical analysis and physical tests, calorific value and swelling of coal, and calorific value, shatter index, abrasion and density for coke.
- 1017 : 1942** Sampling of coal and coke, methods for the NZ
52pp. 3s. 6d. Amendment PD 109, April 1943.
Minimum weight of coal samples is specified and methods of collecting the gross sample and preparing it for analysis are described, with special reference to drying and moisture content. Size and collection of coke samples and reduction of gross sample are described. Forms of sample dividers are given.
- 1018 : Part 1 : 1942** Timber in building construction : floors.
12pp. 2s.
Grading and working stresses are referred to B.S. 940, Parts 1 and 2. The condition of timber, the floor loading used in calculations and the construction of floors are specified. Methods for determining moisture content are given.
- 1019 : 1942** Marking of amateur and commercial cameras and lenses, other than box cameras and single-lens folding cameras.†
8pp. 2s.
This specification lays down the method of marking the focal length and the maximum aperture ratio on the lens mount, the accuracy of such markings, and also the standard series of stop sizes and the marking of distance scales. Details of the methods of measurement of focal length and maximum aperture are given in the appendix ; together with definition of hyperfocal distance.
- 1020 : 1942** Concrete road slabs.†
11pp. 2s. Amendment PD 40, November 1942.
This specification covers minimum requirements for construction of slabs for war-time roads, approaches, etc., and does not apply to public roads administered by a highway authority. Earthworks, sub-base, type of cement, and aggregate, and proportions to be used, are specified. Placing, tamping, and curing are dealt with and slab dimensions are tabulated, with an illustrated section on the making of joints. The Appendix contains instructions on cube tests of concrete.
- 1021-8 & 1158-9 : 1944** Copper alloy ingots and castings.†
21pp. 2s. Memorandum PD 226, March 1944 (superseding PD 1).
1021. 88/8/4. Gunmetal ingots.
1022. 88/8/4. Gunmetal castings.
1023. 86/7/5/2. Leaded gunmetal ingots.
1024. 86/7/5/2. Leaded gunmetal castings.
1025. Cast brass ingots. Type A.
1026. Brass castings. Type A.
1027. Cast brass ingots. Type B.
1028. Brass castings. Type B.
1158. 83/3/9/5. Leaded gunmetal ingots
1159. 83/3/9/5. Leaded gunmetal castings.

† War emergency issue.

B.S.

The chemical composition and mechanical properties are specified in each case. Clauses applicable to the whole group deal with chemical test, freedom from defects, provision of test samples, tensile tests, and inspection. Dimensions of standard tensile test pieces are given.

1029, 1030 : 1942 Silicon bronze ingots and castings.

10pp. 2s.

1029. Silicon bronze ingots.

1030. Silicon bronze castings.

These specifications cover chemical composition and mechanical properties of the material, provision for chemical and tensile tests and a porosity test for castings. Dimensions of prescribed test pieces are shown in an Appendix.

1031 to 1032 : 1942 Aluminium bronze ingots and castings.†

NZ

1072 to 1073 : 1942 High tensile aluminium bronze ingots and castings.†

NZ

1 Vol. 14pp. 2s.

1031. Aluminium bronze ingots.

1032. Aluminium bronze castings.

1072. High tensile aluminium bronze ingots.

1073. High tensile aluminium bronze castings.

Each specification comprises specific clauses governing chemical composition and mechanical properties. General requirements for ingots and castings are then given in sections 2 and 3 respectively. The Appendix gives dimensions of tensile test pieces.

1033 : 1942 Priming paint (lead base) for the protection of steel sheet.†

10pp. 2s. Amendment CG 510, May 1942.

Five types of paint are covered by this specification, of which types 1 and 3 are stoving paints, and types 2, 4 and 5 are air drying paints. Requirements are stated in respect of : composition ; drying time, opacity, colour and finish ; consistency ; skins and coarse particles ; water content ; flash point ; protection against corrosion ; keeping qualities ; and packing and marking of packages. Sampling technique and the methods of test are described in the Appendices.

1034 : 1942 Test code for continuous vertical retorts.

47pp. 3s. 6d.

The code provides for the comprehensive testing of retorts to evaluate the performance and efficiency and contains the necessary provisions for the experimental determination of the yields and qualities of gas, coke, crude benzole, tar, liquor, etc., together with full explanations of how these should be measured. Notes on guarantees and guarantee tests for use by contracting parties in the purchase and construction of new plant are included in an Appendix.

1035 to 1040 : 1942 Raw copper.

NZ

12pp. 2s.

1035. Cathode copper.

1036. Electrolytic tough pitch high conductivity copper.

1037. Fire refined tough pitch high conductivity copper.

1038. 99.85 per cent tough pitch copper

1039. 99.75 per cent tough pitch copper

1040. 99.50 per cent tough pitch copper

} Conductivity not specified.

Each specification describes the material covered and specifies the composition. In addition, for high conductivity copper (1036 and 1037) the resistivity and method of preparation of sample for test are specified. Clauses applicable to the whole group cover shape ; freedom from defects ; marking ; weights and dimensions of cast wire bars ; and permissible variations from the nominal dimensions.

† War emergency issue.

B.S.

- 1041 : 1943 British Standard code for temperature measurement.**
76pp. 4to. 12s. 6d.

This code is designed to assist users in selecting the most appropriate method of temperature measurement for any particular industrial application, to indicate the sources of error and the limitations inherent in each method and to formulate the precautions to be observed. Expansion thermometers, electrical resistance thermometers, thermocouples and radiation pyrometers are dealt with in detail together with electrical and other auxiliary instruments and sections are included dealing with calorimetric measurement of temperature and with Seger cones, Buller's rings and other heat recorders. Sections are also included dealing specially with the measurement of the temperature of gases, liquids and with the interior and surface of solids.

- 1042 : 1943 British Standard code for flow measurement.**
64pp. 4to. 12s. 6d.

Sets out fully the conditions governing the design, installation and use of standard pressure-difference devices in order to obtain consistent and generally acceptable results within a specified tolerance from commercial instruments. The ISA 1932 nozzle, or free plates with corner taps and with D and $\frac{D}{2}$ taps, venturi tubes of the ISA 1932 nozzle type and of the conical type and the Pitot tube are dealt with.

- 1043 : 1942 Code of practice for the provision of engineering and utility services in buildings.**
32pp. 2s.

Definitions are followed by notes on general matters affecting planning of buildings. Requirements are then detailed for the design and methods of distribution of the various services. Subsequent clauses concern proximity of services, fire risk, building by-laws, and transmission of sound from services. Appendix A gives a recommended scheme of planning. Other Appendices concern electrical sub-stations and transformer chambers, fuel storage for boilers, and fire-stops.

- 1044 : 1942 Recommended designs for plug, ring and gap gauges.**
27pp. 4to. 5s. Amendment CG 549, June 1942.

NZ

This Standard deals with recommended designs for all the common types of inspection and workshop gauges for plain and threaded work. It relates solely to the general design and dimensions of the gauges, and does not deal with the quality of the material of which the gauges are made. The types of gauges specified include plain and screw plug gauges, both renewable end type (taper-lock and tri-lock) and solid type ; plain and screw ring gauges ; and plain gap gauges, solid types. Notes are included on gap gauges of the adjustable type.

- 1045 : 1942 Manganese steel gas cylinders for atmospheric gases.**
12pp. 2s. Amendments PD 4, June 1942 ; PD 403, September 1945.

NZ

The cylinders are suitable for pressures up to 120 atmospheres. By 'atmospheric' gases is meant air, argon, neon, nitrogen, and oxygen. The quality and composition of the steel are specified, together with the general method of construction of the cylinders, their heat treatment, and marking. The prescribed tests on sample finished cylinders comprise hydraulic tests, and tensile, impact, and bend tests on test pieces cut from the cylinder.

- 1046 : 1942 Filling valves and hose connections for traction gas bags.†**
19pp. 2s.

This specification applies to the valve attachment used with gas bags for motor vehicles and which incorporates a non-return flap valve of leather to prevent leakage when the cap is removed to connect or disconnect the supply. Full particulars, with dimensioned drawings, are given of the valve parts and a gas tightness test is specified.

† War emergency issue.

B.S.

1047 : 1942 Air-cooled blastfurnace slag coarse aggregate.†

24pp. 2s.

Various terms are defined and requirements relate to weight, stability, grading, water absorption, and chemical composition. Methods of carrying out the tests are detailed in Appendices. The specification covers slags (of the type mentioned in the title) up to 1½ in. size for use in concrete for normal structural purposes including roads.

1048 (1R) : 1942 Schedule of sizes and types of packages of pre-packed commodities.†

91pp. 5s. Amendments PD 323 ; PD 381, August 1945 ; PD 429, November 1945.

This wartime Schedule is made mandatory by the Control of Packaging Order of The Ministry of Supply. It specifies for all prepackaged goods for civilian consumption the sizes of packs which may be retailed and the types of containers which may be used.

1049 (1R) : 1942 Schedule of sizes and types of metal collapsible tubes for British packers in the United Kingdom for the home trade.†

13pp. 2s. Amendment PD 382, August 1945.

This wartime Schedule is made mandatory by the Control of Packaging Order of the Ministry of Supply. It specifies for all civilian usages the types and sizes of collapsible tubes which may be manufactured and the commodities for which they may be used together with the weights which may be packed.

1050 : 1945 Visual indicator lamps.

14pp. 2s.

For use on telephone and telegraph switchboards and for allied purposes. Specifies the dimensions of the lamps, the quality and arrangement of the filament, the material and dimensions of the connection plates and end pieces and the general requirements for the individual types. Clauses covering the selection of lamps for test and the conditions of test are also included.

1051 : 1942 Moisture in relation to textile materials.

7pp. 2s.

This specification provides a method for the determination of moisture in textile materials. It comprises definitions, including examples of calculations, and description of the method of test. The latter comprises determinations of relative humidity, by ventilated wet and dry bulb hygrometer or by sling hygrometer, and of oven-dry weight. The Appendix gives standards of regain for various textile fibres.

1052 : 1942 Mild steel wire for general engineering purposes.†

7pp. 2s.

This specification applies to mild steel wire in six different finishes and in sizes from 40 S.W.G. to 9½ in. in diameter or equivalent cross-section. Chemical analysis, tolerance on sizes, mechanical tests, and galvanising tests are prescribed, and the selection of test pieces is described.

1053 : 1942 Water paints and distempers for interior use.†

10pp. 2s.

This specification provides for the following types in white and tints : Type 1, water paints, oil-bound (grades 1 and 2) ; Type 2, distemper, washable, oil-free ; Type 3, distempers, non-washable, oil-free. Requirements are stated for : consistency ; colour and finish ; water content ; oil or varnish content ; coarse particles ; brightness ; resistance to dry rubbing ; re-coating ; resistance to striking ; and keeping qualities. Sampling and testing are described in the Appendices.

† War emergency issue.

1054 : 1942 **Engineers' comparators for external measurements.**

NZ

9pp. 2s.

This specification relates to instruments known under the general name of comparators, comprising a rigid stand supporting a measuring head over a work table, the readings of the contact point being amplified by mechanical, electrical, optical, fluid or pneumatic means and indicated on a scale at magnifications from 250 to 1500 times. It prescribes such features of the instrument as are essential to secure and maintain the specified accuracy and lays down the permissible errors in reading for instruments of various degrees of sensitivity.

1055 : 1942 *Under revision.***1056 : 1942** **Painting of buildings in war-time.†**

19pp. 2s.

This presents four schedules which deal with the different classes of buildings, new and old, likely to require painting, and gives details of the maximum extent of painting required. The four classes of building are normal buildings ; buildings, the internal surfaces of which require a specially hygienic finish ; buildings subjected to highly corrosive and marine conditions ; and dock buildings, warehouses, sheds, outbuildings, etc.

1057 : 1942 **Substitute paints for exterior finishing.†**

9pp. 2s.

No restriction is placed on the composition of any paint, except that the materials listed in Appendix A shall not be used in the manufacture of paint to this specification in greater proportion than is there indicated. Requirements are stated in respect of consistency, opacity, drying time, accelerated weathering, hardness, flexibility, corrosion resistance, flash point, applicability, and storage properties. Appendices B to G describe the methods of test.

1058 to 1061 : 1942 **Phosphor bronze and leaded bronze ingots and castings.†**

14pp. 2s.

1058. Phosphor bronze ingots.**1059.** Phosphor bronze castings.**1060.** Leaded phosphor bronze ingots.**1061.** Leaded phosphor bronze castings.

The chemical composition and mechanical properties are specified in each case. General clauses applicable to the whole group deal with chemical test, freedom from defects, provision of test samples, tensile tests, and inspection. Dimensions of standard tensile test pieces are given.

1062 : 1943 **Code of practice for planning of electric wiring installations, low, medium and high voltage.†**

11pp. 1s. Amendments PD 202, December 1943 ; PD 256, May 1944.

The object of this code is to give guidance in designing electrical installations and extensions to existing installations during war time, so that material and labour costs can be reduced to a minimum. This involves permissible departures from the I.E.E. Wiring Regulations, as here scheduled. Part 1 refers to low and medium voltage installations. Part 2 refers to high-voltage installations, and large low- and medium-voltage installations.

1063 : 1942 **Wiring on cleats, for low-voltage and medium-voltage electric lighting and power installations.†**

7pp. 1s. Amendment PD 62, March 1943.

This specification, which is supplementary to B.S. 1062, first gives general requirements concerning the method of installation using cleat wiring. The arrangement of final sub-circuits, permissible voltage-drop, and earthing are then dealt with, followed by the specific requirements for the various components of the installation.

† War emergency issue.

B.S.

- 1064 : 1942 Wiring in conduit for low-voltage and medium-voltage electric lighting and power installations.†**
8pp. 1s. Amendment PD 91, March 1943.

This specification, which is supplementary to B.S. 1062, first gives general requirements concerning the method of installation for wiring in conduit. The arrangement of final sub-circuits, permissible voltage-drop, and earthing are then dealt with, followed by the specific requirements for the various components of the installation.

- 1065 : 1942 Outdoor distribution systems for low-voltage and medium-voltage electric lighting and power installations.†**
10pp. 1s.

This specification relates to outdoor distribution systems situated on land owned or leased by the employer. It first defines the extent of contract, the Appendix giving a recommended form of schedule for rates of excavation and reinstatement. The specific requirements of the various components of the system are then detailed, viz., poles, stays, struts, overhead conductors, service lines and connections, cross-arms and posts, insulators, and underground cables. Requirements in respect of crossings of Post Office lines are also given.

- 1066 : 1942 Bell and alarm systems. Extra-low voltage or battery-operated.†**
5pp. 1s.

This specification, which is supplementary to B.S. 1062, covers systems which operate at voltages not exceeding 30 volts A.C. or 60 volts D.C. It prescribes the method of installation, equipment, wiring, positions of apparatus, and tests on completed systems.

- 1067 : 1942 Coal tar pitch felt damp-proof courses for temporary war-time building.†**
4pp. 1s.

This specification has been prepared as coal tar pitch is likely to be the only material suitable as an alternative during the war for bitumen felt damp-proof courses referred to in B.S. 743. It is intended to be used for temporary war-time buildings only and is not at present considered a suitable alternative for use in permanent construction. Clauses cover base material, saturation of felt, pitch, properties of saturant and of heavy creosote oil, sand surfacing, weight of finished felt, and standard packing.

- 1068 : 1942 Dimensions of 250-volt metal-sheathed impregnated paper-insulated plain annealed copper conductors for internal wiring, including voltage tests.† NZ**
11pp. 1s.

This specification applies to paper-insulated cables suitable for use as an alternative to rubber-insulated cables for the wiring of buildings. Sizes and tolerances of circular wire and stranded conductors are specified. Thickness of insulation and sheath is stated and a voltage test is specified.

- 1069 : 1942 Cotton belting ducks.†**
8pp. 2s.

Covers ducks for use in the manufacture of rubber conveyor, elevator and transmission belting and of balata belting 28 oz. and 32 oz. soft-type ducks and 31 oz. and 33½ oz. hard-type ducks are dealt with. Threads per inch, counts, ply folding and weight per square yard are specified with tensile strength and elongation.

- 1070 : 1942 Black paint (tar base) for use on iron and steel.†**
5pp. 1s.

This specification provides for two types of tar-base black paint, viz., Types A and B, which are quick-drying and slow-drying respectively. The material is described and its general characteristics indicated. Requirements are laid down in respect

† War emergency issue.

B.S.

of : water content ; loss on heating ; flash point ; drying properties ; resistance to salt water ; permeability ; flexibility ; storage properties ; packing ; and thinners. Sampling technique and methods of test are given in the Appendices. The Foreword describes a method for the preparation of a simple black paint.

- 1071 : 1943 A.C. arc welding plant and equipment for heavy constructional work.†**
18pp. 2s. Amendment PD 354, May 1945.

This specification applies only to 3-phase multi-operator A.C. arc welding equipment but includes associated gear such as switches, fuses, transformers, etc., and all equipment shall be in accordance with appropriate British Standards, e.g., B.S. 171 and 638. Details are given of the type and construction of all equipment used including a special 4-core cable. Recommendations for the layout of installations are also included.

- 1072, 1073 : 1942 See B.S. 1031, 1032.**

NZ

- 1075 : 1943 Studio spotlight lamps.**
8pp. 2s.

This specification has been prepared with a view to making provision for the strenuous conditions of service to which studio spotlight lamps are subjected. It specifies standard dimensions, bases, filaments, initial rating of lamps, inspection and rating test, rejection of lamps, and marking. Lamp housings, rating of flexible cables, and cable lugs are also covered.

- 1076 : 1942 Mastic asphalt for flooring.**
10pp. 2s.

This specification provides for mastic asphalt for flooring composed of limestone dust and coarse aggregate incorporated with either : (a) Asphaltic bitumen, or (b) Equal proportions of asphaltic bitumen and refined lake asphalt. The specification is in several parts covering definitions of terms : gauges of materials and properties of asphaltic cement ; composition, grading of limestone, coarse aggregate, characteristics of mastic asphalt, hardness number, inspection ; marking ; and remelting on site of work.

- 1077 : 1942 Welded joints in copper vessels.**
4pp. 1s.

NZ

This specification refers to the welding of deoxidised copper by the oxy-acetylene process. Requirements are laid down in respect of the parent metal for welded copper pressure vessels, and of the filler rod. A tensile test is specified for testing the welding technique. The Appendices give notes on copper for welding and suggested chemical composition of a suitable copper.

- 1078 : 1942 Adhesive insulating tape for electrical purposes.†**
4pp. 1s.

Physical, mechanical and electrical tests are prescribed, and values are given for the length/weight ratio.

- 1079 : 1942 Hæmoglobinometers, Haldane type.**
12pp. 2s. Amendment PD 263, June 1944.

Covers both colour tubes for which a definite colorimetric basis is given, and graduated tubes. The specification provides for complete interchangeability of tubes.

- 1080 : 1942 Aluminium alloy bars for the manufacture of fuses and fuse parts.†**
4pp. 2s.

Chemical composition, methods of manufacture and quality of the bars are specified and tensile-test requirements are stated.

† War emergency issue

B.S.

- 1081 : 1942** Test code for kilns for heavy clay ware, including refractory materials.
173 pp. 10s. 6d.

Deals with testing for evaluating the performance and efficiency of intermittent, continuous car tunnel, ring tunnel and chamber continuous kilns used in the heavy clay and refractories industries and fired by solid, liquid or gaseous fuel. The codes cover both comprehensive and less detailed commercial tests for general industrial use. Sections are included in each code with full explanatory notes dealing with general information and design data in regard to the plant being tested, the test conditions, the information to be reported derived from log sheets and preliminary deductions, the thermal statement and the summary of the kiln performance.

- 1082 : 1942** Fixed capacitors. NZ
30pp. 2s.

This covers all fixed capacitors for general purposes, whatever the nature of the electrodes and insulant. Rules for voltage rating are stated, terminal insulation is specified and a table of tolerances on capacitance values is given. Insulation-resistance and voltage proof tests are specified and rules for sampling are given. Voltage-range tests and sealing and temperature tests are described and rules for marking are given.

- 1083 : 1942** Bolts, nuts and set-screws (machine bolts) B.S.W. and B.S.F.† NZ AS
10pp. 2s. Amendment PD 250, May 1944.

This specification supersedes, for the war emergency, the former British Standards 190, 191 and 193 for B.S.W., B.S.F., and B.S.W.S. bolts and nuts. All of these bolts and nuts are, in this specification, standardised to the former B.S.F. nominal dimensions. The specification applies to ferrous and non-ferrous bolts and nuts and in the case of steel, refers to the appropriate qualities in various grades up to 60 tons tensile, as specified in B.S. 970, and gives the detailed dimensions for bolts, set-screws, nuts, lock nuts, castle nuts, slotted nuts, split pins and washers for all regular nominal sizes from $\frac{1}{4}$ in. to 2 in. An appendix gives a code of part numbers for bolts, set screws, and nuts.

- 1084 : 1942** Alternators and D.C. generators, internal-combustion-engine driven.†
3pp. 1s.

This specification covers generators of from 50kW or kVA to 1000 kW or kVA inclusive if driven by internal combustion engines, excepting those for use on ships. It is based on B.S. 226 and B.S. 649, but specifies relaxations and limitations designed to facilitate the production and testing of equipment under war-time conditions.

- 1085 : 1943** Lead alloy pipes.†
4pp. 1s. Amendment PD 206, January 1944.

Chemical composition of the material, and quality, weight and grain size of cross-section of the pipes, is specified. The turn pin test is prescribed and marking of the pipes given. The weight of pipe appropriate to the pressure of water is specified.

- 1086 : 1942** Code of practice for the maintenance of electrical switchgear.
17pp. 2s.

This Code provides a record of items which experience has shown are important in maintenance, and attention is drawn to official regulations bearing on the subject. Safety of personnel is dealt with and a specimen permit-to-work card is reproduced. An example of a maintenance card is given, summarising points requiring attention.

- 1087 : 1942** *Not available for general use.*

- 1088 : 1944** Structural timber for marine craft.†
24pp. 4to. 2s.

Provides for a single grade of plywood which may be either three-ply or multi-ply designed to cover the normal structural requirements of marine craft. Part 1 deals with the species of timber, giving a list of suitable timbers available at the present

† War emergency issue.

B.S.

time although it leaves the species of timber to be used in the construction of the plywood to be agreed between manufacturer and purchaser, and with the quality of veneer. Part 2 covers the construction of the boards and deals in detail with the veneer, the adhesive, scarf joints, manufacturing defects, conditioning and finish. Part 3 specifies the testing requirements and the appendices give methods of test, a description of characteristics of veneers and guidance on the mechanical and physical properties of timbers listed in part 1, this latter information having been supplied by the Forest Products Research Laboratory. NZ

- 1089 : 1942 Workhead spindles, for internal and universal grinding machines, including plain grinding machines, with live spindles.** NZ
6pp. 2s. Amendment PD 98, April 1943.

This specification covers two types of spindle noses, namely screwed and flanged. Diagrams are shown of each type and tables set out the full dimensions for four sizes of screwed noses and five sizes of flanged noses.

- 1090 : 1943 Flameproof hand-held electric drilling machines, primarily for use in mines.**
8pp. 2s.

This specification applies to flameproof machines, comprising a three-phase induction type squirrel-cage motor for operating on a supply not exceeding 125 volts, having windings, insulated with class A or class B material. Constructional requirements are stated, and tests for performance are prescribed.

- 1091 : 1942 Pressed steel galvanised rainwater gutters, pipes and fittings.**
9pp. 2s. Amendment, December 1942.

Standard lengths, thicknesses and nominal sizes are specified, and other matters dealt with include jointing, galvanizing and tests. Full dimensional details of gutters, angles, pipes and fittings are given. As a war-emergency measure no galvanizing is permitted, and details of alternative finishes are given in the Amendment.

- 1093 : 1944 Pitch mastic flooring alternative to mastic asphalt for flooring.†**
14pp. 2s. Amendment PD 294, October 1944.

The quality of materials used in the pitch mastic, i.e., the characteristics of the binder and type and size of aggregate are specified. Requirements included relate to the preparation of the mastic and its hardness. Detailed recommendations are given about the laying, covering such points as thickness, preparation of surface, finish, falls, etc.

- 1094 : 1943 Short-time testing of light alloys at elevated temperatures.** NZ
3pp. 1s.

Recommended test temperature (up to 450°C.) are given, the form and dimensions of the test piece is specified and some details of the heating furnace are given. Strain measurement and methods of loading are indicated.

- 1095 : 1943 Metric screw threads système-internationale.†**
18pp. 2s. Amendments PD 249, May 1944 ; PD 329, January 1945.

This specification defines the form of thread and gives the basic dimensions for diameter from 6 mm. to 125 mm. Complete tables of tolerances, in three grades of fit, are given for standard nominal diameters from 6 mm. to 60 mm. The formulae used for the derivation of the tolerances are given, with explanations on pitch and angle errors, and the basic data is given in convenient tabular form for deriving the appropriate tolerances for metric threads of special pitches, diameters and lengths of engagement.

- 1096 : 1944 Insulated cleat wire.†** NZ
8pp. 2s.

This specification prescribes the essential features of three types of wire which have been evolved for erection on insulating cleats inside buildings. The covering of

† War emergency issue.

B.S.

the wire is intended to provide a degree of mechanical protection and also to ensure reasonable protection from shock under normal conditions of atmospheric humidity. The installation of the wire must be in accordance with B.S. 1063 (as amended by PD 62).

1097 : 1943 Mastic asphalt for damp-proof courses and tanking.
11pp. 2s.

The properties of asphaltic cement, and dimensions of sieves are prescribed, and other matters dealt with include grading of limestone, presence of grit, characteristics of the mastic asphalt, and hardness number, remelting on site of work, and recommendations for application of the mastic asphalt.

1098 : 1943 Dimensions of drilling jig bushes.†
6pp. 1s.

NZ

This specification prescribes the dimensions and tolerances for press fit bushes (headed and headless) up to $1\frac{3}{4}$ in. bore, renewable bushes (slip and fixed types) up to $1\frac{25}{32}$ in. bore, and liners (headed and headless) up to $2\frac{1}{4}$ in. bore.

1099 : 1943 Small fusion-welded steel air receivers.
21pp. 2s. Amendment, May 1943.

The materials used in the manufacture of receivers are specified together with formulae for determining the thickness of shell and end plates. Types of welded joints are specified together with particulars in regard to the methods of making welded joints, dishing and flanging of end plates and the method of fixing the ends. A hydraulic test is stipulated.

1100 : — Office aid to the factory.

1100 : Part 1 : 1943 Principles of production control.
15pp. 6d.

This booklet sets out general principles of production control including an explanatory chart showing items of information necessary to secure it and subsequent subdivisions of control. It is essential that all departments should co-operate, know their several responsibilities, and appreciate their precise functions, so that all run at full load to the finest possible limits. Specimen organisation charts and examples are given with notes on various features.

1100 : Part 2 : 1944 Production control in the small factory.
26pp. 2s.

This booklet outlines the essential information necessary to enable the manager and foreman to control production efficiently in the factory employing from 50 to 200 people. Importance is attached to the flow-chart in the booklet, which provides a clear and comprehensive picture of the recommended procedure.

1100 : Part 3 : 1945 Application of production control.
58pp. 2s. 6d.

This booklet is written from the general viewpoint of a concern dealing with batch production, i.e., where repetition orders occur but not with sufficient regularity, certainty and quantity to call for mass production. Both machining and assembly are envisaged. This type of organisation has the most complex problems to handle and is, perhaps, the one most commonly found to require urgently the assistance of production control. This publication is not a textbook but aims to present in concise form the general nature of the considerations involved in the application of production control. A comprehensive flow-chart covering the operations from receipt of order to despatch of goods is included.

1100 : Part 4 : 1944 Payroll methods including pay-as-you-earn income tax procedure.

40pp. 2s. Amendment PD 271, August 1944.

This booklet outlines some general principles, methods and standards concerned in payroll methods for the purpose of enabling factory offices to review present

† War emergency issue.

practices and to inspire improvements where these are seen to be possible. Practical methods are described in a special Appendix for dealing with payroll problems created by pay-as-you-earn income tax.

1100 : Part 5 : 1944 Stock control and storekeeping.
26pp. 2s.

This booklet sets out the general principles which must be broadly applicable to all industrial undertakings. It is particularly directed to the small firm and the procedures suggested are accordingly on the simplest basis consistent with a complete survey of the field. Details must, of course, be adapted to suit individual concerns, but the principles can readily be applied by the ordinary grades of clerical staff and should ensure order and accuracy of stock control work as well as expediting it.

1100 : Part 9 : 1944 Drawing office organisation.
36pp. 2s.

Drawing office organisation is divided roughly into four main divisions : the design and equipment of the premises including lighting, heating and ventilation ; the general organisation and supervision of the staff and their work ; the planning of the drawing office work as an efficient part of the factory organisation ; and the orderly routine of preparing the original drawings, reproducing them and issuing the working prints.

1100 : Part 10 : 1943 Office organisation and practice.
64pp. 2s. 6d.

This booklet is intended to give information regarding the practical technique of office and clerical organisation and is primarily addressed to firms in the engineering industries which, as a result of war production, have increased in size and are now employing between 250 and 1000 employees. The field of enquiry includes the methods of office management ; the planning of systems ; the design and use of forms ; the use and selection of machines and other devices ; the dissection of accounting necessities into the simplest processes ; the accommodation, lay-out, and lighting needs of offices ; job-grading ; the selection, training, co-ordination and control of staff ; methods of inspection of the work. There is a special section on typing and one on filing. Mailing and messenger services are also dealt with.

1101 : 1943 Pressure paint containers.
23pp. 2s. Amendments May 1943 ; PD 262, June 1944 ; PD 282, September 1944.

This specification applies to pressure paint containers, i.e., vessels used for the purpose of paint spraying by compressed air, not exceeding 36 in. in diameter and working at a pressure not exceeding 100 lb. per sq. in. It does not apply to containers of the 'knapsack' type. Requirements are laid down in respect of the quality of material, construction and workmanship, and inspection and testing of the containers.

1102 : 1943 Rubber suction and discharge hose with woven fabric and wire reinforcement.†
26pp. 3s. 6d. Amendment PD 361, June 1945.

The specification covers suction and discharge hose for acid, oil and chemicals, and suction hose for water, air or dust, sand and gravel, and brewers' and foodstuffs suction hose. In each case the construction, and the properties and strength of wire and rubber components, is specified.

1103 : 1943 Cotton fabrics for the reinforcement of rubber hose.†
8pp. 2s.

The specification covers duck and fabric for hose of small bore, delivery hose of various sizes and for steam and high-pressure hose, and fabric for garden hose, and sheeting. Texture, number of threads per in., weight, tensile strength and elongation are specified.

† War emergency issue.

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1104 : 1943 General purpose acme screw threads.

This 1943 Standard is withdrawn. A revised specification is being prepared and will be issued in due course.

1105 : 1943 Wood wool building slabs.†

5pp. 1s.

Three qualities of slab are covered : normal ; special—of higher strength, for floor and roofing ; reinforced—particularly for roof construction. Dimensions and test loads are specified and test methods described.

1106 : 1945 Code of practice relating to the use of electronic valves other than cathode ray tubes.

4pp. 1s.

This code sets out the conditions to be observed by designers of equipment employing electronic valves so that optimum performance and life may be secured.

1109 : 1943 Cold forged mild steel rivets for cold closing.

NZ

3pp. 1s.

This specification prescribes the quality of the wire by tensile and fracture tests and prescribes bending, flattening and fracture tests on the finished rivets. (The dimensions of the rivets are not specified. See B.S. 641.)

1110 : 1943 Hard copper sheet and strip for electrical purposes.†

11pp. 2s.

Quality and finish is specified and the resistivity at 60°F. stated. Sampling and provision of test pieces is described and test requirements for tensile, bend and hardness tests given. Tables of tolerances on dimensions are added.

1111 : 1943 Summary of British and American standard specifications for iron and steel.

131pp. 4to. 12s. 6d. Amendment, March 1943.

NZ

Tables are given of the various specifications according to application, stating process of manufacture, chemical composition and mechanical properties.

1112 : 1943 Sizes of photographic paper.†

2pp. 6d.

This specification refers to positive paper only ; and it sets out the standard sizes, tolerances on the dimensions, and raw base weights.

1113 : 1943 Water tube boilers and their integral superheaters.

66pp., 4 charts. 7s. 6d.

Part 1 deals with information to be supplied by manufacturer and purchaser. Part 2 specifies quality, manufacture and test requirements of plates, forged drums, forgings, tubes and headers, pipes and steel castings. Part 3 deals with construction and workmanship, riveting, welding and fitting. Part 4 specifies thickness of drum shells, working stresses, ligaments and supports, manholes, joints, etc. Part 5 deals with inspection and testing.

1114 : 1943 Recommendations for wartime finish of machinery and plant.†

3pp. 6d.

In order to give a general lead, guiding principles are stated concerning the modifications to the finish of machinery to meet wartime conditions. Examples of such modifications are given in the appendix, as illustrating the application of these guiding principles.

† War emergency issue.

B.S.

- 1115 : 1943** Routine testing of domestic gas cooking ovens.
31pp. 2s.

This specification does not supersede test arrangements between gas undertakings and gas appliance makers but is intended as a guide to parties concerned. General conditions of test ; a combustion test ; cooking tests and thermostat calibration and performance are specified. For cooking tests ingredients and methods are fully described, including particulars of a high temperature test (scones), heat distribution tests (cakes), low temperature long period test (fruit cake) and full load test (complete dinner). Appendices deal with apparatus required for detecting CO₂ and CO, methods of measurement for various factors, and other notes.

- 1116 : 1943** Flexible trailing cables for quarries and metalliferous mines.
23pp. 2s.

This specification covers cables complying with the requirements contained in Statutory Rules and Orders Nos. 630 and 1233 of 1938 ; but does not include collectively screened cables for which see B.S. 708. Standard sectional areas, number and size of wires in a conductor, continuous rating in amperes, and other particulars are given for a number of different types of 3- and 4-core cables for 660 V. and 3300 V. with illustrations of core sections and notes on distinctive colours to be used for cores. Voltage tests are prescribed.

- 1117 : 1943** Fine resistance wire for telecommunication and similar purposes.†
4pp. 6d.

This has been prepared to meet the requirements for fine resistance wires with considerably closer tolerances than those prescribed in B.S. 115. Two typical classes of wire are :

- a. high specific resistance wires represented by 80 per cent. nickel and 20 per cent. chromium alloy, with iron content not exceeding 1¼ per cent ;
- b. constant-resistance wires substantially equivalent to 60 per cent copper and 40 per cent nickel alloy.

Each class of wire is covered by four grades according to the uniformity of resistance required. The approximate relationship between wire gauge or diameter and resistance in ohms per yard is given.

- 1118 : 1943** Shrinkage on laundering of woven cotton and linen fabrics.
7pp. 1s.

This gives a standard test procedure for determining shrinkage. It comprises sections dealing with : dimensions, preparation and marking of test specimens ; method of conducting washing test ; completing the test (viz., removal of surplus water, drying, etc.) ; and results of test. Appendices refer to marking of fabrics, suitable concentrations of washing solution, and suitable methods of removing surplus water.

- 1119 : 1943** High speed steel butt-welded blanks for shanked type cutting tools.†
17pp. 2s.

This war emergency British Standard gives the general overall dimensions and lengths of high speed steel for butt-welded blanks (comprising a high speed steel portion butt-welded to a medium carbon steel shank) for the manufacture of shanked type cutting tools, such as lathe and planer tools, twist drills, reamers, milling cutters and machine nut taps. For convenience in ordering each blank is given a reference number. The standard describes a recommended heat treatment and also includes an appendix giving the weight of high speed steel for each size of blank.

- 1120 : 1943** Diamond tipped boring tools.†
5pp. 1s.

This specification prescribes the dimensions for seven sizes of boring tools for holes ⅜ in. diameter upwards. Each tool is standardised in a variety of lengths

† War emergency issue.

B.S.

for various methods of mounting in the boring bar. The cutting angles, and position of the diamond relative to the tool axis, are defined. Reference numbers are given to facilitate ordering. The introduction contains notes prepared by the Diamond Die and Tool Control of the Ministry of Supply to give guidance on such matters as the smooth running of machines, foundations, mounting, and drive, and the setting and care of the diamond tools.

1121 : 1943 Recommended methods for the analysis of steel. Part 1 : Determination of sulphur, phosphorus and lead.

7pp. 1s.

Solutions required, and test procedures, are specified for the determination of sulphur, phosphorus and lead.

1122 : 1943 Painting of new public service road vehicles in war-time.†

6pp. 1s.

A war-time painting technique is outlined which, when properly and efficiently carried out, can be expected to provide a life for the painted work of from 18 to 24 months under average operating conditions. The recommendations cover the preparatory work, the choice of colours, and the painting system.

1123 : 1943 Valves, gauges and other safety fittings for air receivers and compressed air installations.

7pp. 2s.

This specification provides for safety fittings for air receivers for maximum permissible working pressures not exceeding 1000 lb. per sq. in. It gives requirements in regard to the installation, the materials used for the fittings, and the construction of parts. Special requirements are prescribed for safety valves, pressure gauge, drainage of receivers, and fusible plugs. Inspection and testing procedures are detailed.

1124 : 1943 Household paint for exterior use.†

12pp. 2s. Amendment PD 167, September 1943.

This specification provides for paints of four colours, viz., cream, brown, green and chocolate, for use by the householder for essential maintenance repair work of private dwellings. Part 1 covers composition and requisite properties of the paint, and marking of containers. Part 2 specifies the requirements of coal tar naphtha for war emergency household paint. Appendices refer to sampling technique, and methods for the determination of drying time and water content.

1125 : 1943 W.C. flushing cisterns.

10pp. 2s.

This edition was issued to supersede the war emergency publication but maintains the bulk of those requirements which had been taken from the Ministry of Health model specification.

The specification deals firstly with general requirements for high and low level cisterns, setting out appropriate materials and requirements in regard to workmanship and the general features of construction. The separate sections give the dimensions it has been possible to standardise in respect of high level and low level cisterns. The former are reversible whilst the latter are non-reversible.

The types covered include cast iron, ware, pressed steel, lead-lined or copper-lined wood and composition. Flush pipes for high level cisterns include steel tubes, lead pipes and copper or copper alloy pipes.

1126 : 1943 Gas welding of aluminium.

11pp. 2s.

This specification relates to the gas welding of certain aluminium alloys, viz., 2L4, L16, 2L17, 2L30, 3L31, B.S. 385, 4T9, B.S. 386, or L34, D.T.D. 213A, B.S. 702 or 2L33. These specifications cover aluminium alloys in all forms, viz., sheets,

† War emergency issue.

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castings, tubes, bars, etc. The requirements laid down include the type of filler rod to be used for welding the flux (with a suggested composition), the type of joint, mechanical tests and inspection. A summary of the essential requirements of the material specifications is given in an appendix, and also recommended forms of joint are indicated.

1127 : 1943 Circular screwing dies.†

AS

6pp. 1s. Amendment PD 401, September 1945.

This War Emergency British Standard, prepared at the request of the Machine Tool Control, provides for nine diameters of circular screwing dies and indicates the particular screwing size for all of the commonly used types of thread which are applicable to each diameter of die. The overall dimensions of the die are standardised and the positions of the conical recesses relative to the adjusting slot are specified. The addendum gives the overall dimensions of 17 sizes of hexagon die-nuts and indicates the particular threads, ranging from 6 B.A. to 2 in. B.S.P., associated with each size of die-nut.

1128 : 1943 Recommendations for primers for camouflage paints for asbestos-cement concrete, cement, cement bricks and sand-lime bricks.†

14pp. 2s.

The finishing paints recommended for the surfaces listed in the title are of the following types : oil-bound water, bituminous emulsion, and wool-grease emulsion paints. Part 1 of this specification comprises a chart giving recommended primers for use with these paints on normal surfaces classified according to their condition in respect of painting needs. Part 2 gives descriptive notes on primers. Part 3 gives notes on essential conditions to be observed in the application of paints.

1129 : 1943 Timber ladders.†

8pp. 2s.

This specification covers extension ladders, also steps, swing-back, and step ladders. Part 1 refers to the timber, and specifies the species to be used, the limitations in regard to defects (e.g., knots), and moisture content. Part 2 refers to extension ladders, and lays down requirements in regard to dimensions, overlap, metal fittings and spacing of rungs. Part 3, covering steps and step ladders, prescribes the method of construction, the dimensions and tolerances, and the material of the metal fittings.

1130 : 1943 Schedule of cast iron drain fittings, spigot and socket type.

25pp. 2s.

Drawings are given of the various types of fittings and in some cases the range of sizes on which each fitting is obtainable is indicated.

1131 : 1943 Bronze oil retaining bear-rings.†

7pp. 2s. Amendment PD 248, May 1944.

This standard applies to cylindrical type bronze bearings having oil retaining characteristics. It establishes a simplified range of sizes, giving the bore, outside diameter, and length of each, together with a series of reference numbers and the appropriate limits on bores and housings. Typical speed-load curves are given.

1133 : 1943 Packaging code.

426pp. 5s. Post free, 5s. 10d. Amendment PD 419, November 1945. 6d.

This code deals with the packaging of Government stores and supplies for both domestic and overseas distribution. The various factors involved in corrosion prevention and the choice of wrappers and containers for the packaging of various types of equipment and commodities are described. Sections are included dealing with methods of packaging and the handling of containers. Details are given of paper wrappers and containers, wooden and metal containers, textile bags, sacks and wrappings, cushioning materials, cordage, closing and sealing tapes and

† War emergency issue.

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tensional steel strapping, together with general specifications. Recommendations are included in regard to the usages for which each particular type of package is specially suitable.

Supplement No. 2 to B.S. 1133 : 1943. Preservations and packaging for tropical theatres of war, recommendations for

198pp. 5s. Superseding Supplement No. 1.

This supplement gives recommendations for the preservation and packaging of a wide range of typical items of Service equipment for tropical theatres of war. Whereas mechanical protection is dealt with in B.S. 1133, the supplement describes the additional protection necessary for the tropics and covers armaments, electrical, telecommunications and mechanical transport stores, mechanical, optical and medical equipment, leather and textiles.

1134 : *Not yet issued.*

1135 : 1943 Spraying nozzles for horticultural purposes.

6pp. 2s.

This British Standard relates to the apertures of discs used with spraying nozzles, and to the dimensions of the screw threads used on nozzles and lances. The specification prescribes the quality of workmanship of the discs and gives a series of reference numbers for the designation of the discs. Four sizes of nozzle threads are standardised and the appropriate thread dimensions are given.

1136 : 1943 Refuse storage containers.

7pp. 2s.

This British Standard is not a rigid specification which would restrict development in design, but is limited to shell dimensions and maximum overall dimensions together with constructional requirements of a general character. The specification deals with one size of container only, namely $1\frac{1}{4}$ cu. yd. capacity. An appendix includes some notes for the guidance of architects in regard to the construction and dimensions of chambers for storage containers.

1137 : 1943 Synthetic-resin bonded-paper sheets for use as electrical insulation at power frequencies.

20pp. 2s.

This specification covers sheets of thickness from $\frac{3}{64}$ in. up to 1 in., the material being intended for electrical insulation purposes for use with direct current, and with alternating current of frequencies up to 100 c/s only. The specification is divided into Part 1, mandatory clauses, and Part 2, optional clauses. Amongst the former are requirements for finish, tolerance on thickness, electric strength along laminal, tensile strength, water absorption and resistance to hot oil. The optional clauses cover insulation resistance, power factor, and mechanical properties. This specification supersedes B.S. 316 and B.S. 547 in so far as they applied to sheets.

1138 : 1943 Test pieces for production control of aluminium alloy spot welds.

6pp. 1s.

Shear test pieces for aluminium base alloy spot welds are specified to standardise control procedure and obtain reliable indications of weld quality. Two test pieces are described, one for material up to 18 S.W.G. thick and one for thicker sheets ; welding procedure, testing procedure and the recording of results are also included.

1139 : 1943 Tubular steel scaffolding.†

9pp. 2s.

This specification covers tubular steel scaffolding in two sizes, a nominal 2 in. scaffolding tube (outside diameter $1\frac{29}{32}$ in.) and a nominal 1 in. scaffolding tube (outside diameter $1\frac{3}{8}$ in.). Detailed specification requirements of the tubes are

† War emergency issue.

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given, and cover such points as the quality of steel, dimensions, tolerances, bending test and protection. The specification also includes two tests to be carried out on a right angle coupler for use with these tubes, viz., a test for distortion and a test for slipping.

1140 : 1943 Spot welding for light assemblies in mild steel.†
10pp. 2s.

Spot welding applied to mild steel assemblies comprising two or more thicknesses of metal is covered. The applications are classified by the relationship of individual welds to structural strength, requirements being specified for appropriate welding machines. The chemical composition of the parent metal is defined and suitable steels are recommended.

1141 : 1943 Secondary zinc alloy for die casting.†
5pp. 1s.

The specification provides for a zinc alloy for die casting made from remelted redundant castings conforming to B.S. 1004. The specification is essentially a composition specification. A very close chemical composition for the metal is given in which the maximum permissible limits for certain impurities have been slightly increased over B.S. 1004.

1142 : 1943 Fibre building board for general building purposes.†
11pp. 2s. Amendment PD 350, April 1945.

Fibre building board is classified into five categories : insulating board, medium hardboard, hardboard, super hardboard and laminated fibre building board. Standard sizes are laid down for home-produced boards in each category and tests for transverse strength—in both directions—and for deflection, are given. In addition a water absorption test is specified for super hardboard and a thermal conductivity test for insulating board. The methods of carrying out all the tests are described in appendices.

1143 : 1943 Special salt-glazed ware pipes with chemically resistant properties.
16pp. 2s.

These specifications provide for salt-glazed ware pipes and fittings having chemically resistant properties. The range of sizes covered is 3 in. to 36 in. diameter. The dimensions for these are given and are identical with those for the standard drain-pipes. A special test for chemical resistance is included. The hydraulic pressure test is higher than that for ordinary drain pipes.

1144 : 1943 Cold twisted steel bars for concrete reinforcement.
10pp. 2s.

The mechanical properties of mild steel bars which have had their yield stress raised by twisting when cold are specified, both for the single twisted and twin-twisted types. Clauses covering the number and type of tests and testing procedure are included.

1145 : 1943 Load bearing concrete brickwork and masonry (not reinforced).
14pp. 2s.

The quality of all materials to be used is specified, largely by reference to British Standards. There are nine concrete mixes, five with varying proportions of cement with coarse and fine aggregate and four with cement and "all in" aggregate. The permissible stress is fixed in relation to the cube tests obtained. The permissible stress on the brickwork depends on the crushing strength of the brick and the type of mortar—there are five cement-lime mortars and two straight-lime mortars. The permissible stress for both concrete and brickwork is subject to correction for slenderness ratio. The method of making cube tests on concrete and determining the crushing strength of bricks are defined in Appendices.

† War emergency issue.

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1146 : 1943 Reinforced brickwork.

12pp. 2s.

The quality of all materials to be used is specified—largely by reference to appropriate British Standards. The permissible stresses on reinforced brickwork are given and other design requirements specified as modular ratio, cover, spacing and anchorage of reinforcement, thickness of wall together with various workmanship clauses. An Appendix describes the test for crushing strength.

1147 : 1943 The use of cathode ray tubes in equipment.†

6pp. 6d.

This 'code of practice' gives guidance to designers of radio and other equipment containing cathode-ray tubes. Tube dimensions, ratings, heater voltage regulation, mounting, ventilation, heater/cathode insulation, grid circuits, focusing, characteristic limits and general conditions are dealt with. The importance of consulting tube specifications and of collaborating with the makers of cathode-ray tubes is emphasised.

1148 : 1943 Diamond tipped turning tools.†

13pp. 2s.

This British Standard establishes the dimensions for two patterns of shank type turning tools, using respectively a 'ball type' tool, permitting of universal adjustment to give side rake and either positive or negative top rake, and an 'adaptor type' tool accommodating standard diamond tipped boring tools and providing either a 2° positive or a 2° negative rake. The specification includes some detailed introductory notes which have been prepared by the Diamond Die and Tool Control of the Ministry of Supply to give guidance in regard to such matters as the smooth running of lathe spindles, the foundations and mounting of lathes, and the setting and care of diamond tools.

1149 : 1944 Testing of lacquers for the internal coating of thermally processed food cans.†

22pp. 2s.

This specification lays down the routine methods for the testing of can lacquers by can makers, including tests for storage and application, suitability for fabrication, packing, and suitability for external protection of blackplate ends. Preliminary sorting tests for meat can lacquers for use by lacquer makers and others are included in part 2. These include tests of application, film weight determination, continuity of film, adhesion, resistance to scorching, flavour, free formaldehyde, free phenolic substances and resistance to processing.

1150 : 1944 Packaging index schedule.

38pp. 1s. Amendments PD 383, August 1945 ; PD 430, November 1945.

Contains complete numerical and alphabetical classifications of commodities referred to in the packaging schedules B.S. 866 (3R), 993 (1R), 1012 (1R), 1048 (1R) and 1049 (1R).

1151 : 1945 Standard form of time and wages sheet and pay packet for the building and civil engineering contracting industries.

6pp. 2s. 6d. One specimen sheet.

The specification includes a standard time and wages sheet with specimen entries, together with an explanation of the columns and their use, and also an Appendix describing methods of extracting and calculating recoverable items. The wages sheet provides the necessary details for accuracy and promptness of wage payments and gives two methods of calculating the amounts to be recovered by the contractor under certain forms of schedule contracts. In particular the sheet facilitates the recording of time lost due to inclement weather and of the guaranteed minimum wage now payable under the 'working rule agreements' applicable to the industries.

† War emergency issue.

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1151 : Part 2 : 1945 Guaranteed minimum reckoners for the building and civil engineering contracting industries.

9pp. 1s.

The 'guaranteed minimum' reckoners have been provided to facilitate the calculation of the guaranteed minimum for a man whose normal working hours available are less than the normal hours laid down in the 'working rule agreements'; provision has also been made for proportionate guarantees where these are payable.

1152 : 1944 Rolled asphalt.†

10pp. 2s.

This specification is an adaption of B.S. 594 for war-time purposes and provides for the use of aggregates of a wider range and variety than those in general use in pre-war days. The specification is designed to cover forms of asphalt construction varying from $\frac{3}{4}$ in. to $4\frac{1}{2}$ in. in thickness. The range of mixtures possible within the terms of the specification is wide, but for simplicity in work they have been reduced to three main types. The tolerances provided are sufficient to make for efficient work of the specification under war emergency conditions.

1153 : 1944 Recommendations for the storage of micro film.

5pp. 1s.

These recommendations relate to containers for storing strips of acetate micro-film not exceeding 100 ft. in length. Two types of container are specified; one type being suitable for film in roll form and the other being suitable for flat strips of film. Recommendations are also made regarding the actual storage of the film in the container.

1154 : 1944 Vulcanised rubber for Government department requirements.†

7pp. 2s.

This specification was originally one of the Government Interdepartmental Specifications for General Stores (T.G. 25A). At the request of the F.B.R.A.M.A. and the Government departments concerned it has been issued as a war emergency British Standard to meet the demand for conservation of rubber. The specification is designed to cover the purchase of materials by Service departments for conditions where the normal commercial equivalents are not suitable. The specification is a war emergency revision of three of the five qualities of rubber originally included in T.G. 25A, the first two qualities of T.G. 25A not being included. Two grades of the remaining three qualities have been introduced, the second grade containing some re-claimed rubber.

1155 : 1944 Plain rubber tubing for Government department requirements.†

9pp. 2s.

This specification was originally one of the Government Interdepartmental Specifications for General Stores (T.G. 49). At the request of the F.B.R.A.M.A. and the Government Departments concerned, it has been issued as a War Emergency British Standard to meet the demand for conservation of rubber. The specification is designed to cover the purchase of tubing by Service departments, where for some technical reason the normal commercial material is not suitable. Two qualities of rubber only are permitted, instead of five, as under the original T.G. 49 and each quality has two grades, the second grade embodying some re-claimed rubber.

1156 : 1945 A.C. and D.C. motors and generators, excluding shipborne and airborne machines.†

8pp. 2s.

This specification applies to motors and generators wound for voltages not exceeding 660 volts, of sizes up to 300 h.p., kW or kVA (D.C. or A.C. 3-phase or single-phase excluding fractional h.p. machines. The specification is based on B.S. 168 : 1936 but contains additional requirements to meet the peculiar and arduous condition

† War emergency issue.

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to which machines used by the services may be subjected. Special attention is devoted to the requirements for equipment for tropical conditions with particular reference to materials and tests.

1157 : 1944 Tapping drills sizes.

AS

28pp. 2s. Amendment PD 304, November 1944.

This British Standard gives schedules of stock drills for the production of tapped holes with B.S.W., B.S.F., B.S. pipe (parallel), B.A., Metric, American national fine, and American national coarse, screw threads within the tolerances laid down in the respective British Standards and American specifications for threads. The calculated resulting percentage depth of engagement is given for each drill size.

1158-9 : 1944 See B.S. 1021-8.

1160 : 1944 Protective painting of iron and steel (other than buildings).†

10pp. 2s.

The specification describes the conditions under which painting of iron and steel should be carried out in war-time. The preparation and cleaning of the surfaces is emphasized and the conditions of application described. Alternative materials suitable for use on iron and steel are indicated and a schedule is included making recommendations for the number of coats and the type of paint to be used in varying conditions of exposure. Some notes on materials are also included.

1161 : 1944 Aluminium alloy sections.

23pp. 2s.

The standard covers the following aluminium alloy sections for general engineering purposes : equal angles, unequal angles, channels, beams and T bars. The properties of these sections, namely, moments of inertia, the radius of gyration, modulus of section, centres of gravity, etc., are given similar to those for standard steel sections. An Appendix gives general properties of aluminium alloys.

1162 : 1944 Mastic asphalt for roofing, natural rock with high bitumen content (6-10 per cent).

12pp. 2s.

This specification provides for mastic asphalt made from natural rock in which the bitumen content is between 6 and 10 per cent. Details are included specifying the properties of the binder, the composition of the mastic before laid, the hardness of the floor when laid, together with recommendations for application.

1163 : 1944 Schedule of permitted uses of container sealers.

10pp. 1s. Amendment PD 384, August 1945.

This specification is made mandatory by the Control of Containers and Packages (No. 1) (General) Order, 1944 and includes the wartime permitted civilian usages of tinfoil and leadfoil faced discs or wads ; blackol, resistol and ceresin paper discs, wads and facings, and rubber packaging rings, bungs, discs and wads.

1164 : 1944 Prefocus lamp caps and holders.

14pp. 2s.

The principal dimensions of 'medium' and 'large' prefocus lamp-caps and lampholders are given together with details of the appropriate gauges.

1165 : 1944 Clinker aggregate for plain concrete, composition and soundness of

10pp. 2s.

This specification is limited to the composition and soundness of furnace clinker for use as aggregate in plain unreinforced concrete of two classes (A) for general purposes and (B) for interior work not exposed to damp conditions. Fineness of grading is not specified as it is common practice for any grading and crushing of oversize material to be carried out by the user after delivery and the permissible

† War emergency issue.

B.S.

proportion of fines may vary widely with circumstances. The content of soluble sulphate and the loss by weight on ignition is laid down, together with the methods of determination and the method of carrying out the soundness test.

1166 : 1944 Dimensions of roll films for service use.
4pp. 6d.

This specification gives length and width, number of exposures, picture size and perforation for roll films for service use.

1167 : 1944 Cotton fabrics for rubber footwear.†
20pp. 2s.

Deals with cotton fabrics for use in the manufacture of industrial rubber boots and rubber footwear for the essential services and H.M. Forces, in order to secure the maximum economy in the use of cotton. Covers the following :

Leg lining for service wellingtons ;
Reinforcement fabric ;
Reinforcement sheeting ;
Fabric for plimsoll uppers ;
Insole fabric for wellingtons ;
Fabric for thigh boot tops ;
Vamp and counter fabric ;

of various weights in all cases. Tests are given for weight, tensile strength and amount of size. A list of yarn schedules and lea strength X count factors is included.

1168 : 1944 Non-reinforced diamond dies for wire drawing.†
15pp. 2s.

This specification relates to dies with bores up to 0.06 in. diameter. It defines the quality of the stone and the appropriate minimum wall thicknesses and minimum weights for various bores. The finish of the hole and its dimensional accuracy are prescribed and notes are included on methods of examining and measuring dies. The essential dimensions of the die case are specified, together with a marking system indicating the material for which the die is suitable. An Appendix gives detailed diagrams of typical profiles of die bores for drawing copper, bronze, resistance, steel, and tungsten wires.

1169 : 1944 Rubber sealing rings for domestic preserving jars for fruit and vegetables.†
8pp. 2s.

Prepared at the request of the Ministry of Food. In two parts. *Part 1* gives recommendations for compounding and ingredients, including type of reclaimed rubber and crumb and shred. *Part 2* gives the specification for ingredients and workmanship and includes tests on the finished rings, i.e., permanent set and hardness and also a test for 'free sulphur.' Dimensions of the rings are given. The specification has been adapted to meet the appropriate Rubber Control specification.

1170 : — Not yet issued.

1171 : 1944 High duty studs and tapped holes in light alloys.†
16pp. 2s. Amendment PD 275, August 1944.

This British Standard refers to 8 sizes of high duty studs, 2 B.A. to $\frac{5}{8}$ in., which are used in aero-engine work. It tabulates recommended limits for screwing both ends of the studs and for tapping the holes into which they are inserted. Tables of dimensions and limits are also given for the inspection gauges and the special undersize screwing taps.

† War emergency issue.

B.S.

1172-1174 : 1944 Deoxidised and arsenical coppers.

10pp. 2s.

1172. Phosphorus deoxidised non-arsenical copper for general purposes.

1173. Tough pitch arsenical copper.

1174. Phosphorus de-oxidised arsenical copper.

This publication provides three separate specifications for deoxidised copper, tough pitch arsenical copper and deoxidised arsenical copper. The chemical composition for each of these coppers is specified separately and there is a general section covering such aspects as freedom from defects, size, selection of test pieces, etc.

1175 : 1944 Stress-graded softwood timber, sizes of.

10pp. 2s.

This specification covers sizes of timber for structural work in the following ranges : beams from 1 1/2 in. \times 3 in. up to 12 in. \times 24 in. ; columns and struts from 4 in. 4 in. up to 14 in. \times 14 in. ; members of small cross section subjected to bending tension and/or compression stresses from 1 in. \times 3 in. up to 2 in. \times 6 in. Requirements are included for tolerances and also nomenclature for ordering dressed timber.

1176 : 1944 Air drying black paint for cooking appliances.†

12pp. 2s.

This specification provides for two types of paint : one for temperatures up to 150°C. and the other for use at temperatures up to 230°C. The specification requirements laid down cover flash point, drying time, resistance to grease, corrosion resistance, resistance to heat, flexibility, etc.

The Appendices deal with methods for carrying out the tests.

1177 : 1944 Pitch mastic flooring incorporating lake asphalt.†

14pp. 2s.

This specification provides for pitch mastic which incorporates 25 to 35 per cent lake asphalt. It is in six parts :

Part 1. Scope.

Part 2. Definitions.

Part 3. General clauses.

Part 4. Preparation of the mastic.

Part 5. Sampling and testing.

Part 6. Recommendations of application of pitch mastic flooring.

An Appendix for the determination of the hardness of the mastic is also included.

1178 : 1944 Milled lead sheet and strip for building purposes.

6pp. 1s.

The specification is in two parts one for milled sheet and the other for milled strip. Both parts cover the following requirements :

Chemical composition ; freedom from defects ; size ; thickness ; tolerance on thickness ; marking.

1179 : 1944 Terms used in the gas industry, glossary of.

54pp. 3s. 6d.

This glossary embraces a considerable range of terms used in various aspects of the gas industry and covering the production, purification, storage and distribution of gas, the by-products incidental to its preparation, as well as terms relating to the utilisation of gas for lighting, heating and power.

1180 : 1944 Concrete bricks and fixing bricks.

12pp. 2s.

Deals with bricks made from inert aggregate and cement only. Classifies them in four classes and suggests the use for which each class is suitable. Lays down the quality of the cement and aggregate to be used, the period of maturity, the dimensions of the bricks and the tests to be applied. The section on fixing bricks specifies only the dimensions.

† War emergency issue.

B.S.

- 1181 : 1944 Clay flue linings and chimney pots suitable for open fire (dimensions and workmanship only).**
14pp. 2s.

The specification covers two types of fireclay or terra-cotta flue linings each type embracing two patterns for use in circular or square flues. Three patterns of chimney pots are also included, comprising two for use with the two patterns of flue lining and a third for use on unlined flues.

In fixing the designs regard has been had not only to the sizes which will most readily course in with the brickwork but also to shapes which, according to scientific investigation, will assist in promoting efficient combustion.

The specification does not include performance tests but gives tests for checking trueness of shape of the articles.

- 1182 : 1944 Non-ferrous thimbles (spigot and socket) and ferrules (sleeve).**
14pp. 2s.

The specification gives a comprehensive range of soil or waste pipe tail pieces and thimbles in straight and bent designs, together with thimbles with vent arms for S and P traps, the whole being designed for use with standard sanitary fittings.

The finish may be as made, polished all over or plated, and the material shall comply with B.S. 1028 type B or B.S. 1026 type A or shall be in other corrosion resisting alloy not less suitable. It is intended to include additional requirements relating to other materials when sufficient data are available for standardisation to be effected with advantage.

- 1183 : 1944 Space required for domestic electric appliances.**
12pp. 2s.

This standard defines the space required for the accommodation of domestic electric cookers, refrigerators, wash boilers, washing machines, and water heaters. The dimensions defining this space should not be confused with the actual dimensions of the appliances.

Additional data, such as the storage capacity of refrigerators, are given in order to assist in the selection of the most suitable appliances for any particular house or kitchen, and the electrical loading is given as a guide to the size of the wiring required.

- 1184 : 1944 Non-ferrous (excluding lead) traps and wastes.**
16pp. 2s.

The specification gives the requirements for two sizes of trap, viz., 1 ¼ in. and 1 ½ in., the types covered being P Traps and S Traps, which are available with 1 ½ in. seals for two pipe systems and 3 in. seals for one pipe systems. The specification also covers waste fittings for baths, lavatory basins and sinks, and requirements in respect of waste plugs and chains and stays.

Fully dimensioned drawings are included, together with requirements regarding design, quality of materials and workmanship generally.

- 1185 : 1944 Stoptap guard-pipes.**
10pp. 2s.

The specification provides a range of three lengths of guard-pipes for the protection of underground stoptaps. The guardpipes are provided with a flange 9 in. in diameter at the top for taking a surface box and the slot for accommodating the surface pipe has a width of 2 in., which will cover the majority of installations.

Requirements are laid down for pipes made from asbestos cement, cast iron, clay-ware and concrete.

- 1186 : 1944 Grading of softwood joinery.**
12pp. 2s.

This specification covers minimum qualities and maximum admissible defects for the component parts of external window frames, sashes and external door frames and internal door frames and linings, staircases, borrowed lights and other internal fittings and also internal and external doors of framed and panelled construction.

B.S.

- 1187 : 1944** Wood blocks (interlocking) for floors.
14pp. 2s.

This British Standard relates to hardwood and softwood interlocking blocks excluding end grain blocks, for laying on sound screeded concrete or other types of rigid bases, and specifies the minimum requirements for dimensions, grade descriptions and methods of manufacture. It includes a list of species of timber suitable for manufacture into wood blocks.

- 1188 : 1944** Ceramic lavatory basins (dimensions and workmanship only).
10pp. 2s.

Two alternative overall sizes of lavatory basin are provided (a) 25 in. × 18 in. and (b) 22 in. × 16 in. which may be made from the following alternative materials : earthenware, fireclay, heavy earthenware, stoneware, vitreous china.

The quality is defined together with requirements in respect of construction, waste hole, tap hole, stud slot and other features whilst the minimum weights of the basins are specified. The dimensions are given by means of drawings and it is required that the articles shall be clearly and indelibly marked with the name or identification mark of the manufacturer together with the number of the standard.

- 1189 : 1944** Cast Iron baths for domestic purposes (dimensions and workmanship).
14pp. 2s.

A range of three sizes is provided, two being of the rectangular pattern and one being of the tub pattern. The quality of the cast iron and of the porcelain enamel is specified, whilst a table of dimensions gives details of overall sizes, measurements of rolls, and position of tap, waste and overflow holes. Two patterns of feet are specified, a fixed type for use on baths without panels and an adjustable type for use on baths with panels. The approximate capacities are given in an appendix, whilst another appendix gives a very complete series of recommendations in connection with bath panels. These recommendations cover types, materials, quality of materials, external and internal finishes, thickness, trueness of shape and requirements for fixing. The free area at floor level is set out in a final appendix for information in connection with pipe layouts.

- 1190 : 1944** Hollow clay building blocks.
14pp. 2s.

Hollow blocks for use in internal walls (load-bearing) and partitions and for use in structural floors, roofs, mansards and analogous construction are specified. The blocks of the first category are sub-divided into types of which both faces are keyed for plaster ; or both faces are smooth and suitable for use without plaster, or those keyed on one face and smooth on the other.

A crushing strength test is included together with the strength required of the various types specified. In addition, the method of determining the water absorption is laid down for use if required.

The dimensions of the various types are given together with the method of checking the trueness of shape.

- 1191 : 1944** Gypsum and anhydrite building plasters.
22pp. 2s. Amendment PD 392, September 1945.

This specification deals with five types of plaster, i.e. :
Plaster of Paris

Retarded hemihydrate gypsum-plaster

Anhydrous gypsum-plaster

Keene's or parian

Anhydrite plaster

and for each type covers the chemical composition, purity, freedom from coarse particles, soundness, transverse strength, and where applicable mechanical resistance and expansion on setting, together with the appropriate methods of test.

B.S.

- 1192 : 1944** Architectural and building drawing office practice.
32pp. 4to. 5s.

Part One, 'Standard practice,' includes sizes of drawings and drawing boards, line thicknesses and types of line, dimensioning, lettering, scales and methods of projection. A variety of graphical symbols, the representation of materials by hatching and colouring, and lists of abbreviations are also given.

Part Two, 'Recommendations and typical examples,' includes the layout of drawing sheets, the numbering of plan units and drawings, the selection and preparation of drawing paper, tracing cloth, etc., and the reproduction of drawings. There are 20 full page drawings and figures.

- 1193 : 1945** Light-sensitive film and paper for recording instruments (excluding film and paper for document-copying work).
10pp. 2s.

This specification schedules a list of sizes of light-sensitive recording materials with a view to reducing the large number of sizes in present use to an acceptable minimum range. Six widths of film and five of paper are standardised. The length, thickness and perforations are specified, together with details of the method of winding the film or paper on its spool.

- 1194 : 1944** Concrete porous pipes for under-drainage.
10pp. 2s.

This specification specifies the cement and aggregate to be used, the composition and preparation. It requires that the moulds and method of manufacture shall be such that the form and dimensions of the finished work are accurate within the limits specified and that the ends shall be square with a longitudinal axis. The dimensions are specified and crushing and porosity tests are also included.

- 1195 : 1944** Kitchen fitments and equipment.
18pp. 2s. Amendment PD 393, September 1945.

The standard includes recommended space dimensions for all kitchen equipment generally. It gives full dimensions for a range of kitchen storage units including floor units, wall storage units and full height units either with shelves or fitted for brooms. Details of the internal arrangements of the cupboards are given.

- 1196 : 1944** Clayware field drain pipes.
8pp. 2s.

This standard covers clayware field drain pipes in diameters from 2½ in. up to 12 in. The requirements specified include quality, workmanship, dimensions and a crushing test.

- 1197 : 1944** Concrete flooring tiles and fittings, dimensions and workmanship.
8pp. 2s.

This British Standard covers the dimensions and workmanship of flooring tiles made with cement and inert aggregate. It specifies the cement, pigments and aggregate that may be used, the shape and dimensions, together with the finish and uniformity of colour.

- 1202 : 1944** Wire nails and cut nails for building purposes.
14pp. 2s.

This specification has been prepared to provide a range of standard sizes and dimensions of wire nails and cut nails for use in connection with the post-war building programme. It includes details of a comprehensive list of round wire nails and a shorter list of oval wire nails, any of which may be of mild steel or copper. The various surface finishes in which the nails are available are specified.

The requirements in regard to cut steel nails cover all those types normally used and give the standard sizes available.

Appendices give the approximate count of nails per lb. in the case of both types.

B.S.

1203, 1204 : 1945 Synthetic resin adhesives for wood.

26pp. 2s.

1203. Synthetic resin adhesives for plywood (phenolic and aminoplastic).

1204. Cold-setting synthetic resin adhesives for constructional work in wood (phenolic and aminoplastic).

B.S. 1203 provides methods of test and technical provisions for liquid, powder and film synthetic resin adhesives intended for the manufacture of flat or curved plywood.

Four types of hot and cold setting adhesives are specified, distinguished by their resistance to water.

B.S. 1204 provides methods of test and technical provisions for liquid and powder cold-setting synthetic resin adhesives intended for the manufacture of wooden structures and assemblies.

The specification includes six types of gap-filling and close-contact adhesives classified according to their mode of employment and degree of water resistance.

1205 : Part 1 : 1945 Cast iron gutters, fittings and accessories. Part 1 : Half round gutters.

10pp. 2s.

The specification forms the first part of a complete standard dealing with half round and O.G. cast iron gutters, gutter fittings and brackets.

Requirements regarding quality of materials, workmanship, finish and marking are given. The gutters are fixed at a 6 ft. effective length, exclusive of the internal depth of the socket, whilst minimum weights are stated. The fittings include square and obtuse left hand and right hand angles, together with outlets and three types of stop ends. Accessories include side and top rafter brackets and two kinds of fascia brackets in mild steel and a fascia bracket in cast iron.

1205 : Part 2 : 1945 Cast iron gutters, fittings and accessories. Part 2 : O.G. gutters.

8pp. 2s.

The specification forms the second part of a complete Standard dealing with half round and O.G. gutters, gutter fittings and brackets.

Requirements regarding the quality of materials, workmanship, finish and marking are given. The gutters have a 6 ft. effective length, exclusive of the socket, and minimum weights are stated. The fittings include square and obtuse external and internal angles, together with nozzle pieces, drop ends, union clips and stop ends. A mild steel fascia bracket is included.

1206 : 1945 Fireclay sinks (dimensions and workmanship).

12pp. 2s.

The specification provides a range of two types of sinks each of which may be had in two sizes. The types comprise reversible sinks without shelves in overall sizes of 30 in. × 18 in. × 10 in. and 24 in. × 18 in. × 10 in. and sinks with back shelves in sizes of 30 in. × 21 in. × 10 in. and 24 in. × 21 in. × 10 in. Clauses covering the construction and dimensions, the type of waste hole and overflow, and details of the tap holes in the case of sinks with shelves are given and it is required that the sinks shall be marked with the British Standard number and name or identification mark of the manufacturer. There are drawings of the various types of sinks dealt with.

1207 : 1944 Hollow glass blocks.

6pp. 2s.

The blocks are intended for internal and external wall panels and are not normally bonded into other wall units. They are not intended to carry superimposed loads but provided that all the requirements of the British Standard are met they will have adequate strength to carry their own weight to a maximum height of 20 ft. and to resist lateral pressure if individual panels do not exceed 120 sq. ft. in area.

B.S.

- 1208 : 1945 Semi rotary pumps, hand operated, double acting for water.**
14pp. 2s.

This specification deals with the external dimensions and performances of pumps in six sizes $\frac{1}{2}$ in. to $1\frac{1}{2}$ in. with performances of 90 to 360 gallons per hour of two types iron body and all brass complete with handle and mating flanges without other ancillary fittings. Materials and tests are prescribed.

- 1209 : 1945 Glass internal sills to wood and metal windows.**
8pp. 2s.

This specification gives the dimensions for both solid and cavity wall construction for metal and wood window frames and also specifies the materials, shape and finish of the sills.

- 1210 : 1945 Dimensions of mild steel and brass wood-screws.**
12pp. 2s.

The dimensions given comprise the screw gauge, nominal size, number of threads per inch, diameter of head, width and depth of slots, and appropriate particulars of head sizes of countersunk, round and raised head wood-screws. Separate tables give the various types of wood-screws available for each standard length and size.

- 1211 : 1945 Centrifugally cast ('spun') iron pipes.**
18pp. 2s.

This specification covers cast iron, straight pipes with spigot and socket or turned and bored joints, manufactured by the centrifugal process in either metal moulds or sand moulds. It corresponds generally to B.S. 78 : 1938 which covers vertical cast pipes.

Three classes of pipes are specified as follows :

Class B. Test pressure 400 ft. head of water.

Class C. Test pressure 600 ft. head of water.

Class D. Test pressure 800 ft. head of water.

The specification prescribes standard lengths, internal diameters and weights of pipes, together with details of hydraulic tests and tests for straightness.

- 1213 : 1945 Ceramic washdown W.C. pans (dimensions and workmanship).**
8pp. 2s.

The pans are required to be made of one of the following materials :

Caneware, earthenware, fireclay, heavy earthenware, stoneware, vitreous china.

The quality of the material and glaze is defined, whilst it is required that, when properly installed with a two gallon flushing cistern at low or high level in accordance with B.S. 1125, or with a cistern provided by the suppliers which, with the pan, purports to form a suite, they shall, in one operation, flush satisfactorily. A table of minimum weights and a table of dimensions are included, with diagrammatic drawings showing the method of measuring the dimensions. It is required that the articles shall be clearly and indelibly marked with the name or identification mark of the manufacturer together with the number of the standard.

- 1214 : 1945 Hessian sandbags and rot-proofed hessian sandbags.**
6pp. 2s.

This specification supersedes B.S./A.R.P. 57 : 1941, of which it is a revision. The properties of the hessian and the construction of the sandbags are prescribed, and the approved materials to be used in the rot-proofing process are stated.

- 1215 : 1945 Oil stains.**
6pp. 2s.

This specification provides for oil stains mainly for the finishing of builders joinery in normal house building work. It gives a general description of the stain, together with tests for colour, light fastness, drying and resistance to rubbing, and effect on varnish.

B.S.

1216 : 1945 Jute insulated cables.

22pp. 2s.

This specification prescribes the standard dimensions of jute insulated cables for use on voltages up to 660 volts. The standard resistance values, the method of measuring the dimensions and voltage tests are also dealt with.

1217 : 1945 Cast stone.

10pp. 2s.

Defines the meaning of cast stone and specifies the composition, reinforcement, colour and texture, and the compressive strength and drying shrinkage.

1218 : 1945 Sluice valves for waterworks purposes.

24pp. 2s. Amendment PD 357, June 1945.

This standard deals with double socketed and double flanged sluice valves 2 to 12 in. nominal diameter in two classes for 600 and 800 ft. head test pressures. The double socketed valves are for use with spigot and socket pipe, the double flanged valves are for use with flanged pipe and with specified adaptors for use with spigot and socket pipe. Dimensions included are external but spindles, nuts, caps and handwheels are dimensioned in detail. The required quality of cast iron, bronze and gunmetal are laid down. Closing is specified to be clockwise. Jointing and packing are specified and testing procedure is included.

1219 : 1945 Printers' and authors' proof corrections.

20pp. 2s.

This contains a table of standard symbols for use in correcting printers' proofs including both those to be used in the margin and the corresponding marks in the text. The use of all these is exemplified in a series of reproductions of corrected pages, and a few recommendations regarding preparation of copy for the printers are also included.

1219C : 1945 Table of symbols for printers' and authors' proof corrections. (*Extract from B.S. 1219.*) 3d.

1220 : 1945 A.C. and D.C. switchboards and motor control equipment (excluding shipborne and airborne equipment) for Government department requirements.†
12pp. 2s.

The specification provides for equipment to meet the normal requirements of the Services ; it does not purport to apply to equipment for special purposes, nor to shipborne and airborne equipment. A special feature is a section dealing with the treatment required to provide protection against damage due to corrosion, insects and mould growth in damp tropical climates.

1221 : 1945 Steel fabric for concrete reinforcement.

20pp. 2s.

Three forms of steel fabric for concrete reinforcement are included in this specification, as follows :

- a. Hard drawn steel fabric.
- b. Twisted steel fabric.
- c. Expanded metal (steel) fabric.

The quality of materials to be used, the method of manufacture, test requirements and conditions of delivery are included in respect of each type of fabric.

Tables giving mesh sizes, sizes of wires, cross-sectional area per foot width, and nominal weight per yard are given, together with sizes of sheets or rolls commonly manufactured.

1222 : 1945 Battery operated electric fences.

6pp. 2s.

The purpose of this specification is to ensure that the energy supplied to electric fences as used for the enclosure of livestock shall be so limited and controlled that under the most extreme conditions it shall not cause danger.

† War emergency issue.

B.S.

The electrical characteristics prescribed are based on experience in the U.S.A. and will be revised if necessary when adequate experimental data on electric fences in use in Great Britain have been obtained.

1223 : 1945 Three-inch seamless necks for drums.
8pp. 2s.

This specification covers three-inch 28 s.w.g. seamless necks for drums, including plugs and capsules. It also gives particulars of the ring gauges used for measuring the necks, plugs and capsules.

1224 : 1945 Electroplated coatings of nickel and chromium on steel and brass.
24pp. 2s.

This specification provides for the essential qualities of electroplated coatings of nickel and chromium on steel and brass articles. It covers four classes of coating according to the atmospheric conditions and/or type of wear to which the article may be subjected, and in an appendix gives examples of the type of article in each class.

The specification is divided into two parts, covering respectively nickel coatings and chromium coatings, and deals with the finish and appearance of the plated surface, thickness of coating, adhesion and porosity, and includes appendices giving methods of test for these properties.

1225 : 1945 Polarographic and spectrographic analysis of high purity zinc and single alloys for die casting, recommended methods for
36pp. 2s.

The standard covers methods of sampling and recommended methods for carrying out determinations for the quantities of impurities in high purity zinc and zinc alloys by the use of the polarographic and spectrographic method.

The publication gives details of the method of carrying out the test, the equipment to be used and the various solutions that are necessary. Recommendations for the interpretation of the results are also included.

1226 : 1945 Draining boards.
8pp. 2s. Amendment PD 404, October 1945.

This specification provides for draining boards, not being integral with sinks, manufactured from one of the following alternative materials :

Asbestos cement,
Cast iron porcelain enamelled,
Fireclay,
Plastics,
Pressed steel sheet, porcelain enamelled,
Stainless steel,
Wood.

Requirements in regard to the quality of the various materials are specified, together with constructional details in regard to wooden draining boards. The surface shall be either flat or grooved, and shall possess a fall to the sink not greater than $\frac{1}{4}$ in. per foot. It is required that raised edges shall be provided which shall be so arranged as to be horizontal when the draining board is correctly fixed in position.

The specification lays down a range of nominal lengths of 18, 21, 24, 27, 30, 33 and 36 in., the nominal length being measured from the outer extremity of the draining board to the outer end of the sink.

1227 : 1945 Hinges.
26pp. 2s.

This British Standard covers a range of cast iron, steel and brass, butt and tee hinges, and various types of hooks and bands selected to meet the needs for normal house building.

A range of standard sizes for each of the various types of hinges specified are included, together with the principal dimensions, minimum weights, standard finishes and a clause covering quality of material and workmanship

B.S.

1228 : 1945 Door bolts, iron and steel and non-ferrous.
18pp. 2s.

The specification covers a range of bolts selected to meet the needs of normal house building. 16 different types of bolts are included and dimensions for a range of different sizes of each type of bolt are given. Minimum weights and standard finishes are specified, together with clauses covering quality of material and workmanship.

1229 : 1945 Fireclay washtubs and tub and sink sets (dimensions and workmanship).
14pp. 2s.

A range of six items is specified which comprises single washtubs, washtub and sink sets in two pieces and combination washtub and sink sets in one piece, all being available with or without shelves.

The quality of the material is described and overall sizes are laid down, together with requirements in regard to the waste holes and outlets, overflows and tap holes. A full range of drawings illustrates the various types covered.

1230 : 1945 Gypsum plasterboard.
10pp. 2s.

This specification defines the types of gypsum plasterboard, the quality and dimensions and includes appendices for the conditioning of specimens, the method of measuring dimensions and the method of determining the weight, the transverse strength and the emissivity.

1231 : 1945 P.V.C. cables and cords for switchboard panel wiring.
6pp. 1s.

The cables are intended for use at voltages not exceeding 250 V., and the insulation is polyvinyl chloride (P.V.C.). The dimensions of the conductors and voltage tests are prescribed, and seven colours for the insulation are standardised.

1232 : 1945 Natural stone for building, dimensions and workmanship of
10pp. 2s.

Includes a dual range of sizes intended to bond with brick work. An indication of the range of heights obtainable by the use of multiples of any one standard stone is also given, but by combining stones of differing heights a wide range of vertical dimensions is available.

1233, 1234 and 1235 : 1945 Copings of clayware, cast stone and natural stone.
20pp. 2s.

1233. Clayware.

1234. Cast concrete.

1235. Natural stone.

These specifications cover copings of the splayed and saddle-back type and include stopped ends, angle returns and stop with return face.

1236 to 1240 : 1945 Sills and lintels in clayware, cast concrete and natural stone.
52pp. 3s. 6d.

1236. Clayware sills.

1237. Cast concrete sills.

1238. Natural stone sills.

1239. Cast concrete lintels.

1240. Natural stone lintels.

Primarily for buildings of a domestic character and designed for standard metal windows conforming to B.S. 990 and standard wood windows conforming to B.S. 644 ; it covers the types, dimensions, material and, in the case of lintels, reinforcement and appendices give the method for the crushing test and ultimate breaking load.

B.S.

1241 : 1945 Tarmacadam and tar carpets gravel aggregate.
12pp. 2s.

This publication provides for tarmacadam made using gravel as the aggregate. The specification is in two parts.

Part One covers the quality of the aggregate and gives gradings for base course, single course and wearing courses. Requirements are given for the quality and quantity of binder and the temperatures of mixing.

Part Two includes recommendations for surfacing with tarmacadam which relates to such points as conditions of transport, thickness for various courses, spreading, joints and application of grit.

An Appendix gives rate of coverage for the various grading and thickness of courses.

1242 : 1945 Tarmacadam tar pavings.
10pp. 2s.

This specification provides for tarmacadam as used for the surfacing of footpaths, playgrounds, etc., when using granite, limestone or slag as the aggregate. It is in two parts.

Part One deals with the supply of the material and Part Two with surfacing with tar paving.

Part One covers gradings for base course and wearing course, the quality of the aggregate to be used and of the binder ; details are also included about the quantity of the binder and the temperatures of mixing.

Part Two includes recommendations for surfacing with tarmacadam which relate to such points as conditions of transport, thickness for various courses, spreading, joints and application of grit.

An Appendix gives rate of coverage for the various gradings and thickness of courses.

1243 : 1945 Metal wall ties.
10pp. 2s.

This British Standard provides for metal wall ties manufactured from mild steel coated with zinc and from copper or copper alloys. Two main types are provided comprising a vertical twist type constructed from strip and a 'butterfly' type constructed from wire, whilst provision is made for other types subject to compliance with certain limiting requirements.

Overall lengths of 6 in. and 8 in. are provided in both types. The requirements in regard to the zinc coating of mild steel ties are laid down in some detail, together with the method of determining the weight of coat.

1244 1945 Metal sinks.
12pp. 2s.

This specification covers a range of metal sinks manufactured from porcelain enamelled cast iron, porcelain enamelled pressed steel, stainless steel, or monel metal. The types specified comprise the following :

Single sink : 24 in. \times 18 in. overall.

Sink with draining board : 42 in. \times 18 in. overall.

Sink with draining board and work slab : 63 in. \times 18 in. overall.

Each of these three main types may be constructed with or without a back ledge.

The quality of materials, surface finish, sizes and positions of overflow, waste and tap holes, are laid down.

In the case of models with a back ledge, the width is increased to 21 in. The internal dimensions of the sink bowl are specified as 21 in. \times 15 in. \times 8 in. with a minimum capacity of 7 gallons, but there is provision for reducing the length with a compensating increase in the width, provided the depth and minimum capacity remain unchanged.

1245 : 1945 Metal door frames.
16pp. 2s.

This standard provides for metal door frames in ten sizes, four are for use with different sizes of internal doors, three for different sizes of external doors and one for garage doors. The frames for use with external doors are available in one profile of section only, but the frames for use with internal doors are available in

three profiles to suit different thicknesses of wall. The requirements included cover the quality of material, the construction, fixing lugs, striking plate, hinges, buffers, finish of the frames, etc.

1246 : 1945 Metal skirtings, picture rails and angle beads.
10pp. 2s.

The specification provides for two types of metal skirting, one for fixing before plastering and the other for fixing after plastering. The type for fixing before plastering is of steel and there are three profiles which provide for alternative methods of fixing. The flush type for fitting after plastering has been completed is of aluminium alloy.

There are two types of picture rail, one for fixing before plastering, made of steel, and the other type, for fixing after plastering, made of aluminium alloy.

The metal angle beads are of steel and are of two types, one with a bull nose radius corresponding to tiling practice, and the other having a small pencil mould radius. For all the components requirements are included covering the thickness of material, the position and size of holes for fixing, length and finish.

1247 : 1945 Manhole step irons.
12pp. 2s.

This British Standard provides for manhole step irons manufactured from malleable cast iron conforming to B.S. 309 or B.S. 310 and comprising two main types. The first of these is for general purposes and the second for use with pre-cast concrete manholes and inspection chambers as described in B.S. 556.

The range of sizes for the first pattern includes two lengths of tail, viz., 4½ in. and 9½ in.; three lengths of tail are provided for the second pattern, viz., 1½ in., 2 in. and 3¼ in. The step itself is standard for all patterns and has a projection from the wall face of 5 in. and a width overall of 6 in. The width, in plan, of the metal forming the iron is also standard in all patterns, being 1½ in.

The Standard sets out full dimensions with illustrations of the two patterns and requires all articles to be galvanised. A malleability test is specified as a part of the manufacturing process whilst details are given of a proof load test which may be conducted by arrangement between the manufacturer and purchaser.

1248 : 1945 Wallpapers.
20pp. 2s.

The specification is divided into two sections dealing with base papers and finished wallpapers respectively. The base paper specification includes minimum requirements as to loading, sizing strength and thickness. The wallpaper specification covers length and width of wallpapers with minimum substances for fillings, borders and linings. A series of definitions for the various types of ceiling papers, fillings, dadoes, borders, friezes and stillings, corners and other methods is included.

1250 : Part 1 : 1945 Domestic gas appliances for immediate post-war housing. Part 1, General specification including space and rating requirements.
16pp. 2s.

This specification deals with water heaters, fires, flueless space heaters, refrigerators and other miscellaneous gas appliances. General requirements and dimensions are given in Part 1, and Part 2 deals with detailed performance requirements and methods of test.

1251 : 1945 Open fires for domestic purposes.
26pp. 2s.

This specification covers firebacks, grates, chimney openings and surrounds for 14 and 16 in. open fires, with or without back boilers, suitable for burning bituminous and smokeless fuels. It covers independent grates or self-setting units and its object is to facilitate installation and ensure efficiency of the fires.

1252 : 1945 Solid fuel cookers and combination grates.
10pp. 2s.

General requirements and ranges of dimensions are given in this specification for various types of cooking appliances and combination grates. The specification deals both with appliances that can be produced from existing patterns, and with performance standards considered to be capable of realisation as soon as labour is available for the manufacture of new models.

B.S.

- 1253 : 1945 Definition of technical mouldings (plastics).
6pp. 1s.

Prescribes the minimum conditions to be complied with as regards design, material and manufacture of a technical moulding in order that such moulding may qualify for the use of the B.S.I. Certification Mark. A technical moulding for this purpose is a moulding made to the specification of a manufacturer who uses the moulding as an assembly part.

- 1254 : 1945 W.C. Seats (plastics).
6pp. 1s.

The quality of materials and broad principles of design are laid down for water closet seats and covers, together with fundamental principles regarding the hinging device and requirements in regard to buffers and essential dimensions.

- 1255 : 1945 Brackets and supports for lavatory basins and sinks (dimensions and workmanship).
14pp. 2s.

This specification lays down the requirements in respect of the materials, workmanship, construction and dimensions of a range of brackets and supports for lavatory basins and sinks. The supports for sinks include the following types :

- a. Cantilever brackets.
- b. Wall-fixing brackets.
- c. Strap and leg supports.
- d. Bracket and leg supports.

Each of the above main types is available so as to accommodate the two standard sizes of fireclay sink, whilst each is available in two patterns, one of which has a plain flange and the other a recessed flange for accommodating the sink overflow. The supports for lavatory basins include one for building into the wall, and another for screwing to the wall, each incorporating a towel rail. A third pattern, which is for screwing to the wall, includes a double towel rail. There are two main types of strap and leg supports, one of which has a towel rail at the front, whilst the other has side and front towel rails. A variation of the former provides for a cast bracket in lieu of a strap. Minimum weights are specified for all castings.

- 1256 : 1945 Malleable cast iron and cast copper alloy pipe fittings for steam, water and gas. Screwed B.S.P. taper male thread and parallel female thread.
54pp. 3s. 6d.

This specification applies to fittings with taper male threads and parallel female threads. It gives standard dimensions for all of the customary types of equal and reducing fittings for nominal pipe sizes from $\frac{1}{8}$ in. to 6 in. inclusive. The fittings are, in general, suitable for working pressures up to 200 lb. per sq. in. in the case of water, and up to 150 lb. per sq. in. in the case of steam and gas. Tests for porosity and ductility are prescribed.

- 1257 : 1945 Methods of testing clay building bricks.
14pp. 2s.

This specification has been produced in an endeavour to unify the methods adopted for determining certain physical properties of building bricks, as tests have previously varied according to the individual views of the testing Authority, with the result that tests from two different sources could not strictly be compared.

The specification lays down requirements in regard to sampling, both in the case of bricks in motion and bricks taken from a stack. Tests covering compressive strength, water absorption and calculation of saturation co-efficient, soluble salts analysis, efflorescence, and drying shrinkage measurement are specified. An Appendix gives details of a convenient form of apparatus for the measurement of drying shrinkage.

A further Appendix gives a series of suggested suitable brickworks tests which can be conducted quickly and easily by a manufacturer to follow the variations in quality which might occur in his product. These tests are not in substitution of the standard tests, but are set out for the convenience of the manufacturer. They include compressive strength and water absorption whilst a method of sampling is laid down.

B.S.

1259 : 1945 Intrinsically safe electrical apparatus and circuits.

10pp. 2s.

This specification is limited to a definition of the term 'intrinsically safe' as applied to sparking that may be produced in certain electrical apparatus or the associated circuits, whereby inflammable gas may be ignited. Two informative appendices are given, the first dealing with the general problem of intrinsic safety and the second describing apparatus using routine testing to establish compliance with the defined term 'intrinsic safety.'

1260 : 1945 Jointing paste for flange and similar type joints for gas-heated domestic appliances and gas installation pipes in buildings.

10pp. 2s.

This specification is intended to meet the immediate post-war need to cover a jointing paste which will ensure, in addition to soundness, resistance to corrosion, and an easy disassembly of joints. It is not based on any definite formula, but provides performance tests for consistency, water content, jointing and non-setting properties, non-corrosive properties and flash point. It requires that the paste shall retain these properties for a minimum period of twelve months.

1261 : 1945 Jointing compound for screwed joints for gas-heated domestic appliances and gas installation pipes in buildings.

12pp. 2s.

This specification is intended to meet the immediate post-war need to cover a jointing compound which will ensure sound screwed joints and adequate protection against corrosion. The specification aims at minimising the number of items stored and carried by a mechanic, by providing materials suitable for more than one purpose. The specification is not based on any definite formula, but provides performance tests for drying time, consistency, colour, opacity and finish, fastness to light, water content, flash point, jointing properties, protection against corrosion, and requires that the compound shall retain these properties for a minimum period of twelve months.

1264 : 1945 Methods of test for transport gas producer fuels.

26pp. 2s.

Provides a standard method of taking samples; a method for screen analysis; methods for the determination of strength and friability, total moisture, potential tar, critical air blast value, ash content, sulphur and chlorine, alkali used for activation; it includes an appendix giving a graphical method of recording screen analyses.

1265 to 1268 : 1945 Drawing boards and tee squares.

16pp. 2s.

1265. Engineers' pattern drawing boards.

1266. Engineers' pattern ebony edged tee squares.

1267. Students' clamped drawing boards.

1268. Students' tee squares.

Each of the specifications included in this series comprises nominal sizes and names, a general description, materials, workmanship and constructional details, finish and limits of sizes.

1269 : 1945 Titanium pigments for paints.

10pp. 2s.

This specification provides for rutile titanium pigment either antimony or zinc modified. Requirements are given for composition, resistance to chalking, number of coarse particles, oil absorption, colour, freedom from zinc oxide and freedom from antimony oxide. Tests for determining the freedom from zinc oxide and antimony oxide, and for resistance to chalking are included in an Appendix.

The publication also includes an addendum to B.S. 636 for titanium white. It provides for two additional types of titanium white, namely, types 6 and 7 based on the rutile titanium pigment with barium sulphate or sulphate carbonate.

The technical requirements for titanium are similar to those given in B.S. 636.

B.S.

- 1270 : 1945 Schedule for electric discharge lamps for general purposes.**
6pp. 1s.

Covers the dimensions and rating of the various types of electric discharge lamps.

- 1271 : 1945 Proof test for creep quality of carbon steel plate of boiler plate quality.**
6pp. 1s.

The specification describes the method of carrying out a proof test for checking the creep quality of carbon steel plate as used for boilers and other pressure vessels. The conditions to be observed in carrying out the test, such as the load, temperature, accuracy of measurements, etc., are defined.

- 1272 to 1280 : 1945 Magnesium alloy ingots and castings.**
20pp. 2s.

1272. Alloy No. 1. Magnesium alloy ingots.

1273. Alloy No. 1 (A). Magnesium alloy castings (as cast or annealed).

1274. Alloy No. 1 (B). Magnesium alloy castings (solution heat-treated).

1275. Alloy No. 1 (C). Magnesium alloy castings (fully heat-treated).

1276. Alloy No. 2. Magnesium alloy ingots.

1277. Alloy No. 2 (A). Magnesium alloy castings (as cast or annealed).

1278. Alloy No. 2 (B). Magnesium alloy castings (solution heat-treated).

1279. Alloy No. 3. Magnesium alloy ingots.

1280. Alloy No. 3 (A). Magnesium alloy castings (as cast or annealed).

This specification provides for magnesium alloy ingots and castings made from three alloys, Nos. 1, 2 and 3 respectively. There are separate specifications for ingots for each of these three alloys and there are six specifications for castings made from these alloys in various forms of heat treatment. In all cases the chemical composition and the mechanical properties are specified.

There is a section covering the general clauses for ingots dealing with the method of testing and number of tests to be taken and there is a similar section for the general clauses applicable to castings. The dimensions of the test pieces are covered in an Appendix.

- 1281 : 1945 Glazed earthenware wall tiles (dimensions and workmanship only).**
10pp. 2s.

Requirements in regard to trueness of shape, standard sizes, tolerances in dimensions and finish are laid down, together with a fully illustrated range of fittings. There are ten standard sizes of plain tiles and the fittings comprise full ranges of angles, cappings and skirtings of the combined and separate types.

- 1282 : 1945 Classification of wood preservatives.**
8pp. 2s.

The classification, which excludes mixtures of tar and petroleum oils, defines the three main groups of wood preservatives : tar oil types including coal tar creosote, organic solvent types and water solution types. Notes are included dealing with application and use.

- 1283 : 1945 Jewellers' ring sticks and ring gauges.**
6pp. 1s.

This standard applies to sticks and gauges for determining the sizes of rings. The standard sizes increase by even increments of $15\frac{1}{2}$ thousandths of an inch. Two grades of sticks and gauges are prescribed, grade A for use as reference gauges, and grade B for use by wholesalers, manufacturers and retail jewellers.

- 1285 : 1945 Wood surrounds for metal windows.**
10pp. 2s.

A range of sizes of wood surrounds for use with metal windows to B.S. 990 is given. Other details include cover, quality of material, dimensions, construction, finish and fixing.

B.S.

- 1286 : 1945 Clay tiles for flooring (dimensions and workmanship only).
14pp. 2s.

Quality and finish requirements are laid down, together with standard sizes and tolerances in dimensions and limits in regard to trueness of shape. Two main types are discussed :

Type A. Those usually known in the trade as ' floor quarries.''

Type B. Those usually known in the trade as ' floor tiles.'

There are six standard sizes of each type.

A full range of fittings is illustrated, giving the dimensions of square edge cove base, round edge cove skirting, rounded edge skirting and cove fittings in the Type A range, whilst the Type B range covers round edge skirting and square edge cove base fittings. Internal and external angles are provided in both types, whilst Type B also covers channel and tread fittings.

- 1289 : 1945 Pre-cast concrete flue blocks for gas fires (of the domestic type) and ventilation.
18pp. 2s.

Provides for two types of flue way, type 1 for use with gasfires of not more than 15 000 B.Th.U. and type 2 suitable for use with gasfires over 15 000 B.Th.U.

Specifies the material, the surface texture and the dimensions of the flue together with the terminals and joint. It also specifies the compressive strength and drying shrinkage together with methods of test for determining these properties.

- 1292 : 1945 Storage fittings for living rooms and bedrooms.
16pp. 2s.

Part One gives recommendations for the overall space dimensions of clothes storage units and book shelf units and storage cupboard units for living rooms.

Part Two specifies the arrangement and dimensions of these units.

SPECIAL ISSUES

Handbook No. 2 : 1943 British Standards for workshop practice.

Out of print—to be superseded by 1946 edition.

Handbook No. 2 includes essential data from 40 British Standards relating to limits and fits, screw threads, gauge designs and tolerances for plain and threaded gauges, bolts, nuts, machine screws, small rivets, small tools, such as screwing taps, milling cutters, reamers and twist drills, keys and keyways, splines and serrations, ball and roller bearings, milling machine spindles, lathe spindle flanges, spindle noses for grinding machines and drilling jig bushes.

In addition, the Handbook contains a section giving extensive data on cast iron, and steel together with some supplementary tables relating to hardness testing, wire gauges and metric conversions.

Handbook No. 3 British Standards for building materials and components includes the essential features of 164 British Standards. 318pp. 12s. 6d. post free.

Supplement to Handbook No. 3 including details from 82 further British Standards. 198pp. 7s. 6d. post free.

CF (DS) 7637 : 1941 : Standardisation of sizes of garments and household textiles, preliminary report on 110pp. 3s. 6d.

This report on the standardisation of sizes for certain classes of merchandise commonly sold by the retail trade has been prepared in an attempt to obtain such measures of size standardisation as may be considered desirable and acceptable. Sections deal with children's, women's and men's garments ; and with household textiles. Schedules are given setting out sizes and measurements for a range of items in each section.

Index to En series of wrought steels : 1942. 50pp. 4d.

SHIP AND SHIP MACHINERY FITTINGS

3001 : 1922 *Under revision.*

3005 : 1922 **Bollards.**

4pp. 2s. Temporarily out of print.

This specification covers the dimensions and shapes for vertical and raked type bollards for towing and mooring. The material specified is good quality cast iron and vertical types should be supplied unless the raked type is specifically ordered. Diagrams of bolting are included with an appendix dealing with the number and size of bolts and rivets.

3006 : 1924 **Stud link cables (anchor cables).**

10pp. 2s. Temporarily out of print.

This specification deals primarily with the dimensions of ships' stud link anchor cables and joining shackles in two comprehensive tables with a reference drawing. The material prescribed for the cables is cable iron but the shackles may be cable iron or unwelded mild steel. Tolerances in width and length of cables and of length of shackles are given.

3009 : 1928 **Ships' boat davits and stowage.**

34pp. 2s. Temporarily out of print.

This specification deals with the design and dimensions of round section wrought iron or rolled steel boat davits and boat stowage. The specification includes two general arrangements and 22 detail drawings and is prefaced by a table giving the size, strength and arrangement of boat blocks and falls and with davit and boat dimensions at end.

3011 : 1929 **Identification colours for engine room piping.**

AS NZ

7pp. 2s.

Specifies the pipe colouring, flange colouring and identification marks to be used for the purpose of facilitating the identification of the various pipe services in engine rooms and other parts of a ship. A diagram illustrates the method of marking the pipes.

3021 : 1922 **Shafting for marine purposes.**

15pp. 2s. Temporarily out of print.

This specification deals with the propelling shafting for cargo ships. Detail dimensional drawings of standard tail shafts and propeller keys and key ways, coupling flanges and drilling for intermediate shafting are given. Material and material tests and methods of forging are laid down together with the proportions upon which the dimensions are based.

3022 : 1924 **Marine flanges.**

AS NZ

28pp. 2s. Temporarily out of print.

This dimensional specification deals with flanges for marine purposes for 55, 125, 225 and 325 lb. per sq. in. and gives the formula upon which the thickness of the flanges are based dependent upon the material and also the assumed bolt stresses. Curves for minimum thickness of metal for cylindrical castings and maximum thickness at neck of valves for cast iron and brass are given in two appendices and lists of standard bolt hole templates are included. A table deals with riveted and screwed-on flanges for steel pipes.

3023 : 1926 **Corrugated furnaces and smoke tubes for marine boilers.**

17pp. 2s. Amendment CC 4865, August 1931 (incorporating previous amendment).

This specification deals with Fox, Morison, Deighton and Leeds forge corrugated furnaces for return tube marine boilers for which dimensions and lengths are given

B.S.

together with a formula for working pressure and material requirements. The specification also deals with plain and screwed stay smoke tubes for similar boilers, and includes requirements as to materials, tests and screwing.

3024 : 1926 Ships' side scuttles and frames, type A.

27pp. 2s. Amendment, September 1926. Temporarily out of print.

Tables set out the full dimensions for five types of scuttles and fixed lights for various positions relative to the water line. Detailed drawings accompany each table showing the design and dimensions of each part for various nominal sizes of scuttles and lights from 6 in. to 18 in.

AUTOMOBILE MATERIAL AND PARTS

5004 : 1927 Cast iron piston ring pots (sand cast and chill cast) for automobiles.

8pp. 2s. Temporarily out of print.

Chemical composition of the iron and quality of the pots is specified. Tensile and elasticity tests on rings cut from the pots are described and test conditions given.

5005 : 1924 *Cancelled, see B.S. 970.*

5006 : 1924 Cold worked steel bars and strip for automobiles.

22pp. 2s. Amendments CF 7433, March 1941 ; CF 8475, August 1941.

General clauses cover definitions, and requirements in respect of mechanical tests, test samples, and workmanship and finish. Specific requirements are then detailed in respect of chemical composition, heat treatment, mechanical properties and margins of manufacture for the various forms of automobile steel, designated as B.S. Nos. 5006/105, 205, 206, 207, 208, 209 and 210 respectively. According to an Amendment, August 1941, B.S. Nos. 5006/105, 205 and 206 have been superseded by B.S. En 32, En 6 and En 32, which are incorporated in B.S. 970.

5007 : 1924 Sheet steels for automobiles, B.S. schedule of

16pp. 2s. Amendment CF 7434, March 1941.

In this schedule heat treatment terms are defined, and chemical composition, mechanical properties, and tensile and bend tests, are prescribed for hot rolled and cold rolled mild steel sheet ; carbon and nickel steels for frames ; and clutch plate steel. Heat treatment and normalizing temperatures are also dealt with. Particulars of tensile test pieces, standard bend test, and metric equivalents are included in the Appendices.

5008 : 1924 *Cancelled, see B.S. 970.*

5009 : 1924 Steel tubes for automobiles.

15pp. 2s.

Four grades of tubes are specified. General clauses cover mechanical tests, provision of test samples, workmanship and finish. Tables of standard tolerances, and of standard sizes and weights per foot run of tube are given. Chemical composition, method of heat treatment, and mechanical properties required, are specified for each grade.

5010 : 1925 *Cancelled, see B.S. 970.*

5015 : 1927 Splines (bottom fitting) for automobiles, dimensions for

10pp. 2s. Under revision.

Tables of dimensions, with drawings, are given for sliding, push, driving and force fit, using 4, 6, 10 or 16 splines.

B.S

5027 : 1924 *Magnetos for internal combustion engines, dimensions for* 19pp. 2s. Temporarily out of print.

Standard nomenclature is indicated for the types of magnetos dealt with in this specification. A series of tables, with accompanying key-plans, gives dimensions of the various types of magnetos. Dimensions of a flange mounting applicable to certain types are also given, as well as limits on dimensions of magnetos.

See also B.S. 45, 164 and 193.

STA SPECIFICATIONS

These specifications are issued for the Ministry of Supply. Price 6d. each, 12 copies or more 3d. each unless otherwise stated.

STA

- 1 : 1943 Special first quality hard drawn spring wire. *Amendment PD 217, Feb. 1944.*
- 2 : 1942 Steel for hardened and tempered coil spring (for guns and armoured fighting vehicles, etc.).
- Appendix to 2 : 1942 Manufacture of hardened and tempered coil springs (for guns and armoured fighting vehicles, etc.).
- 3 : 1943 High quality hard drawn spring wire. *Amendment PD 218, Feb. 1944.*
- 4 : 1943 Standard quality hard drawn spring wire. *Amendment PD 219, Feb. 1944.*
- 5 : 1945 Schedule of carbon and alloy steels for general service applications. 7s. 6d.
- 7 : 1942 Non-ferrous metals and alloys for armaments and general engineering purposes. 5s.

The following additional sections have been issued and are available separately, price 6d. each, 12 copies or more 3d. each per section.

Appendix A to 7 : 1943 Economy soft solders. General notes, compositions and uses.

PD 402. Group 1. Copper and its alloys. 2s.

PD 191. Group 2. Nickel and its alloys. Relevant specifications, uses and general notes.

PD 232. Group 3. Lead and its alloys. Relevant specifications, uses and general notes.

PD 233. Group 4. Tin and its alloys. Relevant specifications, uses and general notes.

PD 234. Group 5. Zinc and its alloys. Relevant specifications, uses and general notes.

PD 364. Group 6. Aluminium and its alloys. 1s.

- 13 : 1943 Copper rings and strip for driving bands of all projectiles and shot (including proof shot). *Amendment PD 201, December 1943.*

17 and 18 : 1942—

17. 'Cap copper alloy' strip for detonator shell and percussion caps.

18. Brass strip for Q.F. and S.A. cartridge cases and for caps.

- 19 : 1943 'Gilding metal' strip for bullet envelopes. *Amendment PD 222, Feb. 1944.*

23 : 1943 Terneplate (tin-terne) quality.

25 : 1945 High silicon iron castings.

BS/RC SERIES RADIO COMPONENTS FOR SERVICE EQUIPMENT

This series of standards has been prepared by the Inter-Service (Communications) Components Technical Committee and published by the B.S.I. as War Emergency British Standards. The series is being issued in loose-leaf form. Three types of document will be included, namely : Guides or Codes of Practice ; Specifications (including Test Schedules) ; Preferred Lists or Interim Working Schedules. The following documents in this series have been issued.

RC.G/1	General guide on radio components. <i>6d.</i>
RC.S/1	General specifications for all radio components in the BS/RC Series.
RC.G/2	Guide on batching and sampling. <i>9d.</i>
RC.G/110	Guide on fixed resistors. <i>3d.</i>
RC.S/110	Group test specification for fixed resistors. <i>6d.</i>
RC.S/110	Test schedule for fixed resistors. <i>6d.</i>
RC.S/120	Group test specification for variable resistors. <i>6d.</i>
RC.S/120.1	Test schedule for variable resistors. <i>6d.</i>
RC.G/130	Guide on fixed capacitors. <i>6d.</i>
RC.S/130	Group test specification for fixed capacitors. <i>6d.</i>
RC.S/130.1	Test schedule for paper-dielectric fixed capacitors. <i>6d.</i>
RC.S/130.1m	Test schedule for miniature paper-dielectric fixed capacitors (excluding metallised paper types). <i>3d.</i>
RC.S/130.2	Test schedule for mica dielectric fixed capacitors. <i>6d.</i>
RC.S/130.2m	Test schedule for miniature mica-dielectric fixed capacitors. <i>3d.</i>
RC.S/130.3	Test schedule for ceramic dielectric fixed capacitors. <i>6d.</i>
RC.S/130.4	Test schedule for electrolytic capacitors. <i>6d.</i>
RC.S/130.6m	1945 test schedule for miniature paper-dielectric capacitors (metallised paper type). <i>6d.</i>
RC.S/130.7m	Test schedule for miniature (High K) type ceramic dielectric fixed capacitors. <i>3d.</i>
RC.S/141	Group test specification for air dielectric rotary variable capacitors. <i>6d.</i>
RC.S/141.1	Test schedule for air dielectric rotary variable capacitors. <i>6d.</i>
RC.S/141.1m	Test and performance specification for miniature variable capacitors (air-spaced ganged type). <i>6d.</i>
RC.S/161	Group test specification for relays types K3000 and K600. <i>9d.</i>
RC.S/161.1	Test schedule for relays type K3000. <i>6d.</i>
RC.S/161.2	Test schedule for relays type K600. <i>3d.</i>
RC.S/165.m	Group test specification for miniature relays. <i>6d.</i>
RC.S/165.m	(Issue 2) Group test specification for miniature relays. <i>6d.</i>
RC.S/165.1m	Test schedule for miniature normal type relays. <i>6d.</i>
RC.S/165.4m	Test schedule for miniature high-speed type relays. <i>6d.</i>

Further documents will be issued from time to time.

Special binders for this series are available, price 4s. each, and a stronger binder is also available at 15s.

BS/ARP SPECIFICATIONS

*These specifications were prepared at the request of the
Ministry of Home Security*

Price 2d. per copy unless otherwise stated

Post free inland ; postage and packing for abroad 6d.

BS/ARP

- 1 Heavy aggregates for shelters constructed *in situ*.*
- 2 Bituminous paint and bituminous compound for the protection of steelwork
- 8 Galvanised wire netting and cloth for protection against flying glass.
- 18 Fluorescent and phosphorescent paint (excluding radio-active materials for A.R.P. purposes).† 1s. NZ
- 38 Traffic paints.* 8d.
- 43 A closet for use in air-raid shelters. 6d. NZ
- 56 Rot-proofing canvas, yarn and cordage. NZ
- 58 Rot- and water-proofing of jute canvas. AS

* First revision.

† Second revision.

BS/BOT SPECIFICATIONS

*These War Emergency Specifications were issued at the request of the
Board of Trade.*

Post free inland ; postage and packing for abroad 6d.

BS/BOT

- 1 : 1942 Women's dresses. 1s.
- 1c : 1942 Women's dresses. (Chart.) (Under review for post-war use.) 1s.
- 2 : 1942 Women's underwear. (do. do.) 1s.
- 3 : 1942 Women's blouses. (do. do.) 1s.
- 3c : 1942 Women's blouses. (Chart.) 1s. 3d.
- 11 : 1942 Schedule of galvanised hollow-ware including ware with japanned or alternative finish. 6d. (See BS/BOT 14.)
- 12 : 1942 Schedule of enamelled or tinned domestic hollow-ware stamped or wrought steel 6d.
- 13 : 1942 Schedule of cast-iron hollow-ware. 3d.
- 14 : 1942 Schedule of japanned hollow-ware (Supplement to BS/BOT 11). 3d.
- 16 : 1942 Hearth furniture. 6d.
- 20 : 1942 Gas lighters, cold catalyst type for igniting town's gas. 1s.
- 23 : 1942 Rayon cloths. 2s.
- 24 : 1942 Cotton cloths. 2s.
- 30 : 1942 Shrink resistance of certain woollen garments. 6d.

BRITISH STANDARDS FOR AIRCRAFT MATERIALS AND COMPONENTS

Price 1/- per copy unless otherwise stated.
Post free inland ; postage and packing for abroad 6d.

All aircraft standards which have been cancelled have been omitted from this list.

A. BOLTS, Etc.

- 6 A 1 Hexagonal headed bolts (low tensile steel. *Amendment PD 80, Feb. 1943.*
- 2 A 4 Test pieces (tensile, bend and notched bar).
- A 14 Hexagonal brass nuts. *Amendments CF 9718, March 1942 ; PD 10 July 1942.* AS
- 2 A 15 Hexagonal headed bolts (high tensile steel). *Amendments PD 6, Aug. 1942 ; PD 82, Feb. 1943.*
- A 16 Hexagonal steel nuts (ordinary, thin, slotted and castle). *Amendments PD 163, Sept. 1943 ; PD 273, Aug. 1944.* AS
- A 17 Machined hexagonal headed bolts (aluminium alloy). *Amendment PD 279, Aug. 1944.*
- A 18 Machined hexagonal nuts (aluminium alloy).
- A 19 Serrations and gauges for serrations. 2s.
- A 20 Spline shafts and holes.

B. BRASS COPPER, Etc.

- 2 B 8 Phosphor bronze castings for bearings (includes solid and cored sticks). *Amendments CF 7090, Jan. 1941 ; PD 305, Nov. 1944.* AS
- 3 B 11 Brass bars suitable to be brazed or silver soldered. *Amendment CF 7089, Jan. 1941.* AS
- 2 B 21 White metal (88/8/4) ingots (suitable for bearings).
- 2 B 22 White metal (92/4/4) ingots (suitable for bearings).

D. DOPE AND INGREDIENTS.

- 3 D 1 Methyl ethyl ketone.
- 3 D 3 Amyl acetate.
- 3 D 4 Butyl acetate.
- 3 D 5 Castor oil (for nitro dope coverings).
- 3 D 7 Benzyl alcohol.
- 2 D 8 Nitro-cellulose syrup. *Amendment March 1922.*
- 3 D 9 Alcohol.
- 3 D 10 Benzol.
- 2 D 11 Triacetin.
- 3 D 12 Triphenyl phosphate.
- 3 D 15 Distillation apparatus.
- 2 D 17 Butyl alcohol.
- 3 D 22 Acetone.
- D 26 Yellow ochre.
- 2 D 27 Zinc oxide. *Amendment CF 7329, Jan. 1941.*
- 2 D 28 Red oxide of iron. *Amendment CF 7329, Jan. 1941.*
- 2 D 29 Identification red. *Amendment CF 7329, Jan. 1941.*
- 2 D 30 Carbon black. *Amendment CF 7329, Jan. 1941.*

AIRCRAFT MATERIALS AND COMPONENTS (continued).

D. Dope and ingredients (continued).

- 2 D 31 Ultramarine blue. *Amendment CF 7329, Jan. 1941.*
- 2 D 32 Aluminium powder.
- D 34 Ethylene glycol.
- 2 D 50 Cellulose acetate. *Amendment CB 9822.*
- 2 D 101 Properties of aeroplane doping scheme.

E. ELECTRICAL.

- 4 E 3 Low tension flexible electric cords and cables. *Amendment May 1921.*
- 2 E 9 Sparking plugs and sparking plug holes, taps and washers.
- 3 E 12 Electric incandescent lamps for aircraft, other than landing lamps. *Amendment CF 4215, Nov. 1939.*
- E 18 Electric incandescent lamps for aircraft, landing lamps. *Amendment PD 274, Aug. 1944.*

F. FABRIC, Etc.

- 6 F 1 4 oz. linen fabric and tape (includes sample). *Amendment CF 7443, March 1941.*
- 6 F 7 Rubber hose for use with aviation fuel. *Amendment No. 1, Sept. 1942.*
- 4 F 8 Mercerised cotton aeroplane fabric (grade I).
- 4 F 15 Hemp lines and ropes for kite balloons.
- 5 F 16 Rubber shock absorber cord.
- 2 F 30 Cotton breaking cord for supplies droppers.
- 3 F 31 Hemp cordage for supplies droppers. *Amendment CF 7331, Jan. 1941.*
- 4 F 32 Hemp cordage.
- 3 F 33 Flexible cotton ropes.
- 3 F 34 Linen sewing thread.
- 4 F 35 Flax cordage.
- 2 F 37 18 oz. cotton canvas.
- 2 F 38 18 oz. flax canvas.
- 2 F 41 Rubber-proofed fabric.
- 3 F 45 Rubber hose for use with hot water. *Amendment PD 314, Dec. 1944.*
- 3 F 47 Cotton tapes.
- F 49 Cotton webbing.
- 3 F 50 Eyeleted fuselage webbing.
- 3 F 51 Light elastic cord for parachutes, W/T instruments and aerial suspensions.
- F 52 Linen reinforcement webbing.
- F 53 Parachute main harness webbing.
- F 54 Flax sewing cord for parachute harness.
- 2 F 55 Cotton duck (dyed) for cases and travelling bags for parachutes.
- F 56 Transparent sheets for observation panels.
- F 57 Scoured cotton fabrics.

K. CAST IRON.

- 4 K 6 Cast iron piston ring pots. *Amendment CF 7333, Jan. 1941.*
- 2 K 11 Iron castings for cylinders (water cooled and air-cooled), pistons and valve guides.

L. ALUMINIUM AND LIGHT ALLOYS.

- 6 L 1 Aluminium alloy bars, extruded sections and forgings (not greater than 3 inches diameter or minor sectional dimensions). *Amendment PD 310, Nov. 1944.* AS
- 5 L 3 Aluminium alloy sheets and coils. *Amendments PD 160, Sept. 1943 ; PD 215, Feb. 1944 ; PD 309, Nov. 1944 ; PD 349, March 1945.* AS

AIRCRAFT MATERIALS AND COMPONENTS (continued)

L. Aluminium and light alloys (continued).

2 L 4	Aluminium sheets (hard). <i>Amendment CF 9994, May 1942.</i>	AS
3 L 5	Aluminium-zinc-copper alloy castings.	AS
3 L 8	12% copper-aluminium alloy castings.	
4 L 11	7/1 aluminium alloy castings.	AS
2 L 16	Aluminium sheets (half-hard). <i>Amendment CF 9995, May 1942.</i>	AS
2 L 17	Aluminium sheets (soft). <i>Amendment CF 9996, May 1942.</i>	AS
2 L 24	'Y' aluminium alloy castings.	AS
4 L 25	Aluminium alloy forgings (including pistons and cylinder heads).	
2 L 30	98% Aluminium notched bars and ingots.	
3 L 31	99% Aluminium notched bars and ingots for remelting.	
2 L 33	Silicon aluminium alloy castings. <i>Amendment PD 81, Feb. 1943.</i>	AS
L 34	99% aluminium bars and sections.	
L 35	'Y' aluminium alloy castings (heat treated).	AS
L 36	Aluminium rivets.	AS
2 L 37	Aluminium alloy rivets. <i>Amendments CF 9997, May 1942 ; PD 308, Nov. 1944.</i>	AS
2 L 38	Aluminium coated aluminium alloy sheets and coils. <i>Amendments CF 9998, May 1942 ; PD 161, Sept. 1943.</i>	
2 L 39	Aluminium alloy bars and forgings (greater than 3 inches diameter or width across flats or minor sectional dimensions). <i>Amendment PD 307, Nov. 1944.</i>	AS
2 L 40	Aluminium alloy bars, extruded sections and forgings (not greater than 3 inches diameter or minor sectional dimensions). <i>Amendment PD 311, Nov. 1944.</i>	AS
2 L 42	Aluminium alloy forgings (including pistons and cylinder heads).	
L 44	Soft aluminium alloy extruded bars and sections (not greater than 3 inches diameter or minor sectional dimensions). <i>Amendment No. 1, May 1942.</i>	
L 45	Aluminium alloy bars and forgings (greater than 3 inches diameter across flats or minor sectional dimensions). <i>Amendments CF 5098, Feb. 1940 ; PD 385, Aug. 1945.</i>	AS

S. STEELS.

4 S 1	35-45 ton carbon steel bars for machining.	
2 S 2	55-ton alloy steel bars. <i>Amendment CC 4577, June 1931.</i>	
3 S 3	Mild steel sheets and strips (for welding).	AS
3 S 6	'40' carbon steel (normalised).	
4 S 11	55-65 ton nickel chromium steel.	AS
2 S 14	Carbon case-hardening steel.	AS
3 S 15	3% nickel case-hardening steel. <i>Amendment CB 4788, April 1928.</i>	AS
3 S 20	Tinned steel sheets.	AS
3 S 21	'20' carbon steel (suitable for welding).	AS
3 S 24	Bright steel bars for keys	AS
2 S 28	Air-hardening nickel-chrome steel.	AS
S 61	High chromium steel (non-corroding), 35 tons. <i>Amendment CB 6583, Dec. 1928.</i>	AS
S 62	High chromium steel (non-corroding), 46 tons. <i>Amendment CB 6583, Dec. 1928.</i>	AS
S 65	65-ton nickel chrome steel. <i>Amendment CB 6583, Dec. 1928.</i>	
S 67	5% nickel case-hardening steel. <i>Amendment CC 4789, April 1928.</i>	
S 68	16% tungsten steel.	
S 69	3½% nickel steel. <i>Amendment CB 6583, Dec. 1928.</i>	
S 70	'55' carbon steel (normalised).	AS
S 71	'30' carbon steel (normalised). <i>Amendment CB 6583, Dec. 1928.</i>	

AIRCRAFT MATERIALS AND COMPONENTS (continued)

S. Steels (continued).

- 2 S 76 '40' carbon steel (hardened and tempered).
- S 77 '30' carbon steel (hardened and tempered). *Amendment CB 6562, Dec. 1928.*
- S 79 '55' carbon steel (hardened and tempered).
- S 80 High chromium (non-corroding), 55 tons. AS
- 1 S 81 65 to 75 ton nickel chromium steel. *Amendment CE 3780, May 1937.* AS
- S 82 Nickel chromium case-hardening steel. AS
- S 84 Low carbon steel sheets and strips (suitable for welding). AS
- S 85 Non corroding steel sheets. AS
- S 90 High tensile 5 per cent nickel case-hardening steel. AS
- S100 Testing procedure applicable to aircraft steels.

S.P. STANDARD DETAILS.

- 2 SP 1 Shackles. *Amendment CF 7334, Jan. 1941.* AS
- 3 SP 3 Fork joints (low tensile type).
- 5 SP 4 Steel pins. *Amendments PD 260, June 1944 ; PD 288, Oct. 1944.* AS
- SP 6 Turnbuckles.
- 2 SP 7 Fork joints (high tensile type).
- SP 8 Turnbuckles (tension rod type). *Amendments CF 9719, March 1942 ; PD 92, March 1943.*

T. TUBES.

- 3 T 1 35-ton steel tubes. *Amendment PD 409, Oct. 1945.*
- 3 T 2 85-ton nickel chromium steel tubes. *Amendment PD 408, Oct. 1945.*
- 5 T 4 Aluminium alloy tubes. *Amendments CF 8226, July 1941 ; PD 306, Nov. 1944.* AS
- 5 T 7 Seamless copper tubes for oil, petrol, gas starters and general purposes. AS
- 4 T 9 Aluminium tubes. AS
- 3 T 26 20-ton steel tubes (suitable for welding). *Amendments PD 316, Dec. 1944 ; PD 407, Oct. 1945.*
- 2 T 35 35-ton steel tubes (suitable for welding). *Amendment PD 285, Sept. 1944.*
- 2 T 45 45-ton steel tubes (suitable for welding). *Amendments PD 286, Sept. 1944 ; PD 406, Oct. 1945.*
- 4 T 47 Brass tubes for honeycomb type radiators. AS
- 2 T 50 50-ton steel tubes. *Amendment PD 405, Oct. 1945.*
- 3 T 51 High pressure seamless copper tubes. AS
- 2 T 52 Hard drawn phosphor-bronze and phosphorus deoxidised bronze tubes.

V. TIMBER, GLUES, Etc.

- 4 V 2 Casein glue for aircraft purposes. AS
- 6 V 3 High strength plywood for aircraft. *Amendment PD 266, July 1944.*
- 3 V 4 Ash. *Amendments CC 420, April 1930 ; PD 66, Jan. 1943.*
- 3 V 5 Walnut (for use in airscrews). *Amendments CC 421, April 1930 ; PD 68, Jan. 1943.*
- 4 V 7 Mahogany (for use in airscrews). *Amendments CF 8194, July 1941 ; PD 67, Jan. 1943.*
- V 8 Rock elm. *Amendments CC 5777, Dec. 1931 ; CF 4214, Nov. 1939 ; CF 8964, Nov. 1941.*
- 5 V 11 Dry gelatine glue for aircraft purposes.
- 6 V 10 Liquid and jelly gelatine glues for aircraft purposes.

AIRCRAFT MATERIALS AND COMPONENTS (continued)

W. WIRES, WIRE ROPES, Etc.

- 3 W 1 High tensile steel wire.
- 5 W 2 Flexible steel wire rope. *Amendments CF 9705, April 1942, PD 247, May 1944.*
- 6 W 3 Streamline wires. AS
- 3 W 6 Flexible steel wire rope for kite balloon cables. *Amendments CF 8227, June 1941; PD 159, Sept. 1943.*
- 6 W 8 Tie rods (swaged).

X. PAINTS AND VARNISHES.

- 4 X 2 Oil and petrol resisting battleship grey paint.
- 3 X 4 White dope resisting paint.
- 3 X 6 Varnish for external woodwork.
- 3 X 7 Varnish for internal woodwork.
- 2 X 8 Undercoating propeller varnish.
- 3 X 9 Bituminous paint.
- 2 X 11 Transparent woodfiller for propellers.
- 2 X 12 Finishing propeller varnish.
- 2 X 14 Priming varnish.
- 2 X 17 Seaplane varnish. *Amendment CF 7336, Jan. 1941.*
- X 18 Shellac varnish.
- X 19 Acid resisting paint.

D.T.D. (Directorate of Technical Development) specifications are not issued by the British Standards Institution; application for these should be addressed to the Director of Publications, H.M. Stationery Office, York House, Kingsway, W.C.2.

A.G.S. (Aircraft General Standards) can be obtained, by application in writing, from the Ministry of Aircraft Production, R.T.P.4., Harrogate, Yorkshire.

CODES OF PRACTICE

These codes have been prepared by the Codes of Practice Committee for Civil Engineering, Public Works and Buildings formed under the aegis of the Ministry of Works.

- CP 1 : 1943 Protection of structures against lightning. 3s. 6d.
- CP 2 : 1943 Heating and hot water service installations. 1s.
- CP 4 : 1944 Code of functional requirements of buildings.
Chapter V, Loadings. 2s.
- CP 5 : 1945 Code of functional requirements of buildings.
Chapter 1 (B), Sunlight. 6d.
- CP 6 : 1945 Code of functional requirements of buildings.
Chapter 1 (C), Ventilation. 6d.
- CP 7 : 1945 Code of functional requirements of buildings.
Chapter VII (F), Provision of artificial light. 2s.

The following standards have also been adopted as codes by the Codes of Practice Committee.

- BS
- 1043 The provision of engineering and utility services in buildings. *See General List.*
- 1062/6 Codes for electrical wiring. *See General List.*

Copies of these codes can be obtained from H.M. Stationery Office as well as from the B.S.I.

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